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Urban Policy

A Time for a Paradigm Shift

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Executive Summary

This report reviews the dominant strains of urban land-use and transport policy (urban containment) in metropolitan areas and evaluates its longer-term impact on households and the economy.[1]

1. Urban policy: the context

Large cities are a relatively recent phenomenon in the world, having proliferated only over the last 200 years. Generally, cities have grown because of the economic opportunities that they have provided for residents. That being the case, the purpose of cities is to facilitate greater affluence. This is best measured by maximizing household discretionary incomes (the income left over after taxes and basic necessities). All things being equal, higher household incomes lead to lower levels of poverty.

In recent years, Canada's economy has performed very well, especially in relation to competitors such as the United States, Western Europe and Japan. Canada is virtually alone among major high-income nations, despite some setbacks, in being close to balancing its national budget.

Yet, there are concerns, particularly at the metropolitan area level. House prices have been rising strongly relative to incomes, and there is some concern that a housing bubble may be developing. At the same time, traffic congestion and travel times in metropolitan areas in Canada are greater than those of many world competitors with high income. This detracts from competitive position of cities.

Cities are important to the economy. The 2011 census indicated that more than 80 per cent of the population lives in metropolitan areas and that between 2006 and 2011, 95 per cent of the population growth in the nation occurred in metropolitan areas. The major metropolitan areas (over 1,000,000 population, including Toronto, Montréal, Vancouver, Ottawa-Gatineau, Calgary and Edmonton) accounted for 65 per cent of the population growth, considerably more than their 45 per cent population share.

A number of metropolitan areas are now subject to urban containment policies that were adopted to stop the expansion of urban areas (pejoratively called "urban sprawl"). The focus of urban planning is principally on the nature of the urban form and the method of urban transport. Urban form and transport, however, are not objectives in themselves. For example, the objective of personal travel is not personal travel; rather, it is reaching a destination. The objective of urban form is not pleasing architecture, street patterns or visual landscapes, it is to enhance and improve the lives of urban residents.

Public policy should be focused on objectives. In urban policy, this means greater household affluence and poverty eradication in the context of sufficient environmental protection and prudent fiscal stewardship.

2. Urban containment policy: summary

The principal strategies of urban containment are to draw urban growth boundaries beyond which development is not permitted and to encourage "sustainable" transportation such as transit, walking and cycling while discouraging automobile use. Urban containment policy is principally justified by the interest in reducing greenhouse gas (GHG) emissions, on the assumption that denser living and less automobile (including sport utility vehicles and personal trucks) use will make a significant contribution to environmental sustainability. Even so, the urban planning preference for urban containment policy long predates concerns about GHG emission reduction by decades.

3. Evaluation of urban containment assumptions and strategies

The most important assumptions and strategies of urban containment reveal important shortcomings.

Agricultural Land and Open Space: Planners claim that the expansion of urban areas must be constrained (1) to preserve food security by limiting the conversion of agricultural land and (2) to maintain sufficient open space. In fact, all the total land of all urbanization that has been developed in the more than 400 years since the beginning of Canada's European settlement is small compared with the reduction in agricultural land that has occurred from peak levels, measured by province. As a result, these concerns, in and of themselves, are not sufficient to justify constraining urban expansion.

Favouring Transit and Discouraging Automobile Use: Transferring demand away from automobiles to "sustainable" transport such as transit, walking and cycling is a particular concern of urban containment. In fact, all high-income Western metropolitan area residents rely principally on automobiles for their personal travel and on trucks for commercial travel and goods movement. Transit does an effective job of providing mobility to the largest downtown areas (central business districts or CBDs). However, housing, employment and travel are highly dispersed in the modern metropolitan area, making public transit ineffective for most trips. It would be financially prohibitive to provide the transit infrastructure to replicate the mobility of the automobile.

Urban containment policy assumes that higher population densities translate into substantially higher transit usage. To the contrary, research shows that higher transit usage is driven much more by the density of residences and commerce near downtown, not throughout the urban or metropolitan area.

A Localized Jobs-Housing Balance: Urban containment policy seeks to establish localized jobs-housing balances, whereby people live closer to their work. However, the very justification of the metropolitan area is its size as a labour market, which improves its economic effectiveness (which is associated with greater household

affluence). If labour markets were Balkanized within a metropolitan area, slower economic growth would be expected. Further, substantial attempts to establish improved localized jobs-housing (jobs to housing) balances have been largely unsuccessful.

Infrastructure Costs: Another assumption is that the expansion of suburban areas results in substantially higher infrastructure costs. In fact, many urban areas continue to expand while continuing to provide needed infrastructure. However, should a municipality perceive that suburban expansion is too expensive, legislatures have provided alternatives such as incorporating new municipalities outside the existing municipalities and, as in some U.S. states, the establishment of municipal utility districts. This permits suburban development to continue, extending housing affordability and greater affluence for new entrants to the market without having to rely on jurisdictions that, for whatever reason, are not open to peripheral growth.

Greenhouse Gas Emission Reduction: The Intergovernmental Panel on Climate Change (IPCC) determined that reduction of GHG emissions should not cost more per metric tonne than $20 to $50. There are indications that the cost per tonne of urban containment policies both in housing and urban transport are substantially above this range. Generally, urban planning does not compare the cost of its strategies to this metric. However, any expenditure above this range represents a misallocation of resources and has the potential to retard household affluence and the economy.

Moreover, the potential contribution of urban containment policy to GHG emission reductions is small, even at its high price.

One favoured strategy is to seek GHG emission reductions by reducing the number of kilometres driven. Often it is assumed that there will be a one-to-one ratio between the reduction in kilometres driven and GHG emissions. In fact, as traffic slows down and congestion increases, automobiles consume more fuel per kilometre (produce more GHG emissions), which can materially reduce the GHG emissions reduction expected from driving less.

Vehicle fuel economy is improving substantially. Proposed regulations would require fuel economy of 4.3 litres per 100 kilometres by 2025. U.S. government projections for a similar fuel economy standard indicate that GHG emissions from automobiles will decline more than 30 per cent from 2005 to 2040, even as driving volumes increase substantially.

Environmental sustainability has prerequisites. The first, described above, is that sustainability must be cost-effective, costing no more than $20 to $50 per tonne of GHG emission reduction. The second is that economic growth must not be materially impeded. A third prerequisite, and perhaps the most important, is that measures to reduce GHG emissions must be politically acceptable (political sustainability). Strategies that are not politically acceptable are not likely to be sustainable over the longer term in any nation in which governments require the consent of the governed.

The conclusion is that urban containment is not a cost-effective policy for reducing GHG emissions.

4. Urban containment: social and economic consequences

There are consequences to urban containment policy.

Urban Containment and Housing Affordability: The most damaging consequence of urban containment policy is the erosion of housing affordability attributable to land-rationing strategies such as urban growth boundaries. This is to be expected. Constraining the supply of any good or service tends to increase its price, whether oil, land for residential development or any other good or service.

Housing is the largest household expenditure. If people pay a larger share of their income for housing, they will have less discretionary income with which to purchase other goods and services. This reduces job creation (increases unemployment).

Considerable economic evidence points to the relationship between higher house prices relative to incomes and urban containment policy. Moreover, price volatility is greater in markets with urban containment policy. Investment (pejoratively called speculation) is also greater.

The key is to maintain a competitive land supply on the urban fringe. A competitive land demonstrated by land prices that exhibit historically low relationships to house prices, which are the principal component of the differences in house prices between markets.

Recognizing the damage that urban containment policy inflicts on household affluence through higher house prices, major land use regulation policy reforms have been announced or undertaken in New Zealand, the United Kingdom and some jurisdictions in Australia and the United States

Moreover, there are concerns about house price increases or even a housing bubble in Canada. This is an ominous prospect in view of the disastrous experience in the United States that led to its greatest economic decline since the Great Depression. Consistent with that concern, rating agencies have downgraded major banks in Canada because of high mortgage holdings and a high household debt ratio, much of it due to larger mortgages. At the same time, the Bank of Canada could find it more difficult to control inflation, since prices of the largest household expenditure item, housing, are largely driven by provincial and metropolitan land-use policy over which the Bank of Canada is virtually powerless.

In recent years, Canada's house prices relative to incomes have risen more than those in Australia, Ireland, New Zealand, the United Kingdom and the United States (nations included in the *Demographia International Housing Affordability Surveys*) have. This is most evident in the larger metropolitan areas of Vancouver, Toronto, Montréal and Calgary, but it has also occurred in metropolitan areas such as Saskatoon, Victoria and much smaller Kelowna.

Because of the higher house prices, many younger, immigrant and lower-income households are denied home ownership and a better quality of life.

Urban Containment and Urban Transport: Economic research indicates that metropolitan economies tend to perform better when people have greater geographical access to employment opportunities. The more jobs people can reach in a fixed

> ***The more jobs people can reach** in a fixed period (such as 30 minutes), the more economically productive a metropolitan area is likely to be.*

period (such as 30 minutes), the more economically productive a metropolitan area is likely to be. Traffic congestion is generally worse in Canada's metropolitan areas than in comparably sized U.S. metropolitan areas and one-way work trip travel times are longer. Further, by increasing traffic congestion, urban containment policies tend to increase air pollution levels along major corridors, with negative health effects.

5. Urban containment policy: broader economic impact

Urban containment policy has also been cited in international research as generally reducing the rate of economic growth in metropolitan areas and increasing business costs. The Financial Crisis Inquiry Commission in the United States cited more-restrictive land-use policy as one of the four underlying factors in the current U.S. financial crisis.

6. Toward a new paradigm in urban policy

A new paradigm in urban policy is imperative. Preferences with respect to the urban form and mode of transport are justified only to the extent that they improve the economy and the affluence of urban households. To the extent that urban containment slows this objective, it should be repealed.

The focus should be on objectives, not means. The objectives of facilitating greater affluence for residents and alleviating poverty can be addressed in the context of sufficient environmental protection and prudent expenditure of public resources.

1. Urban policy: the context

This report reviews the dominant strains of urban land-use and transport policy (urban containment) in metropolitan areas and evaluates the longer-term impact of these policies on households and the economy.

1.1 The role of cities

Large cities[2] are a comparatively recent development. Various estimates place world urbanization at under 10 per cent in 1800. Now, more than one-half of the world is urban and many high-income nations, such as Canada, are more than 80 per cent urban.

The principal reason behind the movement of people from rural areas to urban areas is economic. Former World Bank principal planner Alain Bertaud (2004) noted that "large labor markets are the only raison d'être of large cities."[3] People have moved to cities to take advantage of the superior economic opportunities and to enjoy a better standard of living. This betterment of the standard of living is the very purpose of cities. In household economic terms, improvement in the standard of living is achieved by maximizing discretionary income (gross income minus taxes and living expenses such as housing, food, clothing and transportation). Metropolitan areas with many affluent households will tend to support greater national economic growth and will tend to have lower poverty rates.

Advances in transport and access technology (from walking, to mass transit to automobiles and now, telecommuting) have facilitated greater geographical access. Further, households have become far more affluent, which has sparked preferences for more living space.

This led to greater population growth outside the urban core (suburban and even exurban areas), while urban cores have grown more slowly (or lost population).[4] This suburbanization occurred not only with the proliferation of the automobile in the second half of the 20th century but also with the establishment and expansion of mass transit services in the middle 19th century (and before). Cities have *an organic tendency to grow on the urban fringe, becoming less dense as they add population.* This trend has been identified in virtually all of the world's megacities,[5] from the poorest to the most affluent.[6]

1.2 Economic performance

In recent years, the economy of Canada has outperformed its competitors, including the United States, Europe and Japan. Canada was the first of these economic powers to regain its real pre-Great Financial Crisis gross domestic product and the only one that has returned to its pre-recession employment level.[7] Significantly, Canada is virtually unique in the high-income world for its planned imminent return to a balanced national (federal) budget.

Nonetheless, there are economic challenges such as balancing provincial and municipal budgets, while keeping debt levels manageable. In addition, the continuing economic malaise in the much larger United States economy could dampen prospects for growth in the Canadian economy.

Two concerns are of particular relevance to urban policy.

- House prices have been rising quickly, and there is concern that a housing bubble is developing. This could lead to serious economic consequences, as the experience of the United States has shown.
- Traffic congestion is generally more intense and travel times are generally longer in Canadian metropolitan areas than in areas of similar size, especially in the United States. This creates a competitive disadvantage.

There are also significant demographic challenges. The elderly population will likely double relative to the working-age population by 2050, which will make it more difficult to sustain the social safety net and pension programs.[8]

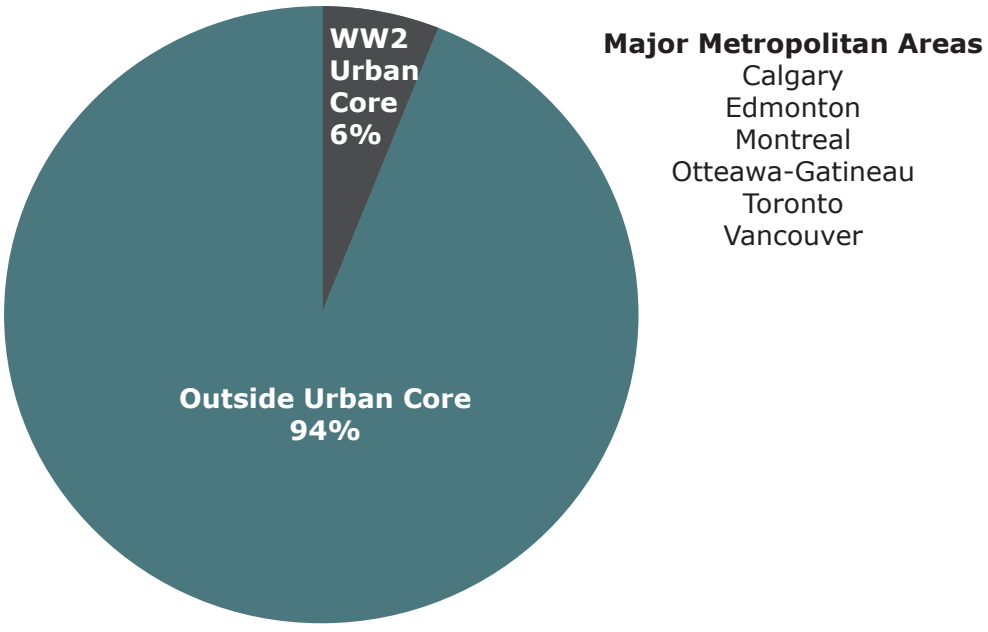
1.3 City growth in context

A better future for the country requires strong economic growth, which depends in large measure on the economic performance of cities (metropolitan areas or urban areas).[9] Nearly 82 per cent of the population lives in metropolitan areas and census agglomerations.[10] Moreover, 95 per cent of the population growth between 2006 and 2011 was in the metropolitan areas and census agglomerations. More than 45 per cent of the nation lives in the six major metropolitan areas (those with more than 1,000,000 population, including Toronto, Montréal, Vancouver, Ottawa-Gatineau, Calgary and Edmonton). These major metropolitan areas accounted for a much larger share of the population growth between 2006 and 2011 (65 per cent).

CHART 1

Share of Population Growth

Major metropolitan areas (2006-2011)



Five of the six metropolitan areas grew substantially faster than the national population increase of 5.8 per cent, ranging from 9 per cent to more than 12 per cent in Calgary and Edmonton. Population growth was less than the national average in other metropolitan areas, with a few exceptions, such as Saskatoon, Regina, Kelowna and Lethbridge, all of which grew more than 8 per cent. Moreover, nearly all population growth between 2006 and 2011 was outside the post-World War II urban cores in the major metropolitan areas (Chart 1, previous page),[11] which is consistent with the worldwide experience.[12]

By virtue of the large metropolitan population in Canada, urban policies can have a substantial impact on the affluence of Canadian households and on the economy. Moreover, Canada's population is more concentrated in a single larger metropolitan region than are the populations of all other G-8 nations, with the exception of Japan. The Golden Horseshoe, focused on the Toronto metropolitan area but stretching from Oshawa to Barrie, Kitchener and Niagara, contains nearly one-quarter of the nation's population. In comparison, the larger New York metropolitan region[13] contains less than 8 per cent of the U.S. population. Because of its disproportionate size relative to the nation, Golden Horseshoe urban planning policies are likely to be important to the overall economy.

1.4 Urban containment policies

A number of metropolitan areas are now subject to urban containment policies (which may be referred to by terms such as "smart growth," "growth management," "compact cities," "densification" and "livability").

The principal purpose of urban containment policy is to stop the expansion of urban areas (pejoratively called "urban sprawl"[14]). Related policies would seek to densify corridors within urban areas, discourage (or even outlaw) new detached housing[15] and transfer automobile usage to "sustainable" modes of transport including mass transit, cycling and walking. Perhaps the most important justification for urban containment policies is the reduction of GHG emissions. However, urban containment policy was favoured in urban planning long before concerns arose about GHG emissions.

Urban containment policy has roots in the British *Town and Country Planning Act 1947,* before which, urban planning was more liberal. Cities could grow organically, with most development on the urban fringe. The role of urban planners was principally to facilitate development of the infrastructure required for growth.

The policy focus of urban planning is principally on *means*—such as the nature of the urban form and the method of urban transport.

However, *objectives* such as maximizing household affluence and minimizing poverty should be the focus of urban policy in the context of sufficient environmental protection and prudent stewardship over public financial resources. Urban planning policies, such as urban containment, are justified only to the extent that they facilitate the accomplishment of these objectives.[16]

This report evaluates urban containment policy and its impact on people and their standard of living in the context of the challenging fiscal, demographic and environmental situation.

2. Urban containment policy: summary

Urban containment policy is intended to stop the expansion of the urban footprint or substantially reduce the rate of expansion. There is a perception that urban areas have expanded too much and that urban containment is required to reduce GHG emissions. This concern leads to policies that would encourage so-called sustainable modes of transport such as mass transit, cycling and walking, while discouraging the use of automobiles.

These issues are considered so compelling that proponents seek to outlaw the more traditional, liberal land-use planning that was typical following World War II. Urban containment has thus become the default option in urban planning.

2.1 Urban containment strategies

The principal strategies of urban containment policies are as follows:

Urban Growth Boundaries: Perhaps the most important urban containment strategy is the urban growth boundary, which is drawn around urban areas.[17] New development is virtually outlawed outside an urban growth boundary, while all development is forced inside the boundary.

Infill Quotas: A related strategy is the infill quota, which can require that a specified percentage of new development occurs within the existing urban footprint. In some cases, a modest amount of greenfield (undeveloped land or rural land) development is permitted on the urban fringe, with most development required to be within the existing urban footprint (for example, a 70 per cent urban footprint requirement, leaving 30 per cent for development in greenfield locations).[18]

Priority for Mass Transit, Cycling and Walking, Discouraging Driving: Urban containment policy favours mass transit, cycling and walking and discourages automobile use in metropolitan areas. As a result, little or no new road capacity is provided. It is assumed that by discouraging automobile use and substituting travel by transit, walking and cycling, there will be a material reduction in GHG emissions. This strategy often goes by the label "transportation choice" and seeks to provide greater mobility, especially through mass transit, for everyone in the urban area, but particularly for low-income households that do not have access to cars.

Urban containment policy has also been justified by claims that traffic congestion and air pollution will be less.

Localized Jobs-Housing Balance: Urban containment policy seeks to densify housing in neighbourhoods, especially near rail transit stations and along specific corridors that have frequent transit service. The assumption is that more-dense neighbourhoods will lead to reductions in automobile use, and because travel distances will be shorter, greater transit use and more walking and cycling will

> ***The assumption is that more-dense neighbourhoods will lead to reductions in automobile use, and because travel distances will be shorter, greater transit use and more walking and cycling will occur.***

occur. It is claimed that a localized[19] jobs-housing balance will materially reduce GHG emissions.

Costs of Infrastructure: Urban containment policy is also proposed in order to minimize the cost of infrastructure needed to handle population growth. The assumption is that lower density development requires substantially more expensive infrastructure than does higher density development. In markets with urban containment policy, substantial development impact fees are often charged for new detached housing.

The balance of this report will evaluate urban containment assumptions and strategies as well as its consequences, which have, more often than not, been either ignored or denied in urban policy deliberations.

3. Evaluation of urban containment assumptions and strategies

This section evaluates urban containment policy based upon its principal underlying assumptions and strategies.

3.1 The urban footprint, agricultural land and open space

One of the most enduring claims of urban containment policy is that the expanding urban areas threaten food supplies by consuming excessive amounts of agricultural land, while substantially reducing the amount of open space (See Sidebar 1, next page).

3.1.1 Agricultural Land: In fact, the amount of agricultural land has been declining for decades as productivity has improved. Much more land has been taken out of production than all of the urbanization that has occurred in the more than 400 years since the beginning of European settlement. In 2011, total agricultural land was 147,000 square kilometres below the maximum.[20] This is 12 per cent more land than is covered by the entire Maritime provinces of New Brunswick, Nova Scotia and Prince Edward Island (Chart 2).

CHART 2

Total Reduction in Agricultural Land

Equal to N.B., N.S. and P.E.I.: from maximum

Source: Agriculture and Agri-food Canada data.
Map developed from http://dimaps.net/userimages/569308.gif

In 2011, total urbanization was approximately 22,000 square kilometres. In other words, 6.4 square kilometres of agricultural land has been taken out of production for each square kilometre of *all* urban land.[21] In Ontario and Québec, which account for more than one-half of the country's urban land, the amount of land taken out of agricultural production is six to eight times the total urbanization. At the same time, agricultural production has shifted strongly to the Prairie Provinces.

At the same time, the country has become much more productive as less land has been used. Since 1961, the real value of the national agricultural product has risen 180 per cent.[22]

Thus, urbanization poses no threat to agricultural production. Indeed, as in Europe and the United States, Canada's agricultural subsidy program provides incentives to farm *more* land than is needed. New York University Professor Shlomo Angel has shown that, around the world, there are "adequate reserves of cultivatable land sufficient to feed the planet in perpetuity."[23]

3.1.2 Open Space: There are also concerns that urbanization is consuming too much open space. However, open space has been increasing, as agricultural land has been reduced due to greater productivity. This has resulted in an overall *reduction* in the human footprint.

The abundance of agricultural land and open space does not justify measures to limit the organic expansion of cities.

Sidebar 1

Do urban areas consume too much land?

It is often claimed that urban areas consume too much land or that they are insufficiently dense. As noted in Section 1.1, urban areas around the world have expanded spatially as has been permitted by urban transport technology.

The world's largest urban areas exhibit a great range of land area and population density. For example, the Dhaka (Bangladesh) urban area is the highest urban density megacity[24] in the world, at 45,000 people per square kilometre. This is nearly 25 times the average urban population density in the six largest metropolitan areas (1,900 people per square kilometre).

In contrast, the New York urban area covers more than 11,500 square kilometres and is the world's least dense megacity, at fewer than 2,000 people per square kilometre. The U.S. average for major urban areas is even lower at 1,200 people per square kilometre. Some large urban areas, such as Boston and Atlanta, are below 1,000 people per square kilometre. In these urban areas (and some others in the United States), the low population densities have been driven by urban planning regulations that require large minimum lot sizes. These regulations, which produce below-market population densities, have generally not been adopted in Canada.

There are no standards for minimum urban density, and as Section 3.1 indicates, there is no shortage of land for urban development. Density, like the urban form and the mode of transport, is a means, not the objective of urban policy (which is to facilitate greater affluence and reduce poverty).

3.2 Urban transport

The urban containment objective of materially replacing automobile use with transit, cycling and walking is unattainable from a practical perspective.

3.2.1 The Role of the Automobile: The modern metropolitan area relies substantially on automobiles. The overwhelming majority of travel is by automobile in virtually all large metropolitan areas of the high-income world.[25] Further, trucks provide most commercial mobility and goods movement in urban areas. The reason being that only automobiles can provide rapid travel between virtually all locations in a metropolitan area.

Walking and cycling serve niche markets within metropolitan areas but cannot compete with the geographical range and travel time of automobiles. Further, large metropolitan areas are too big for mass transit to compete effectively with the automobile. Paris illustrates this, with arguably the most comprehensive mass transit system in the West. People living in suburbs with regional rail service can reach twice as many jobs within one hour by automobile as by transit.[26] Transit takes longer in Canada as well. In the three largest metropolitan areas (Toronto, Montréal and Vancouver), work trip travel times average 60 per cent longer by transit than by automobiles (44 minutes by transit versus 27 minutes by automobile).[27]

3.2.2 Transit: Strengths and Weaknesses: Transit's strength is in providing mobility to the densest downtown areas. For example, more than 40 per cent of all transit work trips in the six largest metropolitan areas in Canada are to jobs in the downtown areas. This 40 percent of transit commuting represents nearly three times the share that downtowns represent of metropolitan jobs (14 per cent).

The modern metropolitan area has decentralized well beyond the CBD and the urban core. However, transit cannot compete with the automobile for most work trips or for other trips to areas outside downtown, where 86 per cent of jobs are located. Transit tends to be more time-consuming, because of the necessity of transferring and the longer walks that are required to reach one's destination (referred to as "the last kilometre problem"). As a result, mass transit has a much lower work trip market share outside the downtown areas. This is illustrated by the fact that in the less transit-oriented areas (principally suburbs) of the three largest metropolitan areas (Toronto, Montréal and Vancouver), working at home accounts for approximately the same work access share as transit.[28]

3.2.3 The Impossibility of Transferring Demand from Automobiles to Transit Service: The overwhelming share of urban automobile demand simply cannot be transferred to transit (or cycling or walking). To do so would require the provision of competitive travel by these modes, which would be financially prohibitive. Professor Jean-Claude Ziv (Conservatoire national des arts et Métiers) and I estimated that from 20 per cent to 80 per cent of metropolitan GDP would be required annually for the operating, capital and financing costs of competitive mass transit systems that would fully serve large urban areas.[29]

Similarly, the objective of providing transit service throughout the metropolitan area for people without cars would be similarly prohibitive.

Indeed, no planning agency in the world has proposed a serious plan that would provide rapid mass transit throughout a metropolitan area.

For the same reason, transportation choice, by which mobility is provided throughout the metropolitan area for lower-income households without cars, cannot be achieved. Because of its high costs, transportation choice can only be provided for some with destinations downtown and for some in the densest sectors of the urban core. Equal transportation opportunity cannot be provided for the rest. This is likely the reason that no transportation choice metropolitan plan that relies on transit has been seriously proposed by agencies with implementation authority.

3.2.4 Higher Population Density and Transit Use: Urban containment policy also assumes that higher densities translate into substantially more transit use. As a result, there are efforts not only to increase the densities of urban core areas but also densities along major streets and boulevards throughout the urban area and locations in outlying suburbs. However, the density, in and of itself, is not a strong determinant of transit ridership.[30] Location in relation to downtown (CBD) is far more important.

There is an increasing recognition among researchers that the crucial issue with respect to higher transit ridership is proximity to downtown, which is the only place in the modern urban area that has substantial, convenient service from the rest of the urban area. Statistics Canada research indicates that people in higher density housing areas use cars at a rate similar to those in nearby lower density housing in areas more than 10 kilometres from the downtown.[31] Research in Melbourne, Australia, indicates that higher population densities in rail corridors have failed to materially increase mass transit commuting, because most jobs are not within walking distance of rail stations, except in the highly concentrated downtown.

Modes of transport should be encouraged or discouraged only to the extent that they facilitate greater affluence and reduce poverty. This issue is further discussed in Section 4.2.

3.3 Localized jobs-housing balance

Urban containment policy seeks to improve the localized jobs-housing balance, with people generally living much closer to employment rather than travelling throughout the metropolitan area to access their jobs. It is assumed that a greater localized jobs-housing balance will reduce travel distances, encourage more use of transit, cycling and walking and discourage automobile use.

A localized jobs-housing balance is at odds with the objective of improving the standard of living, because it seeks to reduce the size of labour markets and thus the efficiency of labour markets. Former World Bank principal planner Alain Bertaud noted that the economic efficiency of the city requires "avoiding any spatial

fragmentation of labor markets."[32] Any forced Balkanization of labour markets is likely to lead to less robust economic performance in metropolitan areas, with less household affluence and higher poverty rates.

Attempts to establish localized jobs-housing balances are likely to fail, since the location preferences of people and businesses are beyond the knowledge of planners. People change jobs and job locations to a greater degree than in the past. Workers in multiple employee households can make it impossible for housing to be near work locations. Metropolitan areas are labour markets, which means that it is at this level where the jobs-housing balance occurs, rather than at the local, sub-metropolitan level.

3.3.1 Localized Jobs-Housing Balance: The Record: Efforts to establish localized jobs-housing balances have been largely unsuccessful, principally because people tend to seek the employment opportunities that serve their needs best in the entire metropolitan area.

In the United Kingdom, "self-sufficient" new towns (such as Milton Keynes and Stevanage) were built in the exurbs with sufficient employment for the new residents. The jobs and the residents materialized, but the shorter travel distances did not. The 2001 census showed that residents of the new towns travel to work, on average, a distance twice the diameter (distance across) of the new towns they live in.[33] A large share of the residents work in other towns or in the large cities. Other workers commute long distances from other parts of the metropolitan area to jobs in the new towns.

Urbanologist Sir Peter Hall made similar findings with respect to Stockholm's satellite communities. The overwhelming majority of people work outside the communities in which they live, despite planning intentions similar to those in the United Kingdom.[34]

The elusiveness of a localized jobs-housing balance is illustrated by comparing Hong Kong and the six largest metropolitan areas. Probably no urban area achieves the objectives of urban containment policy as well as Hong Kong does. It is the highest density urban area with more than 1 million residents in the high-income world (over 25,000 per square kilometre). Hong Kong also has the highest mass transit work trip market share of any major metropolitan area in the high-income world (70 per cent).[35]

Yet, Canadian metropolitan areas, with their far lower urban population densities and far lower mass transit market shares, have a localized jobs-housing balance that is competitive with that of Hong Kong. The 2011 census indicates that only 21.4 per cent of Hong Kong's resident workers commuted to jobs in their own districts (average area 61 square kilometres).[36] By contrast, according to the 2006 census, an average of 29.6 per cent of workers in Canada's six largest metropolitan areas commuted to jobs within five kilometres of their homes (79 square kilometres).[37] The five-kilometre radius encompasses somewhat more than the average size of Hong Kong districts. In the Canadian metropolitan areas, a 40 per cent larger share of resident workers commute to local areas that are only 30 per cent larger than Hong Kong districts.[38]

3.3.2 The Advantages of Larger, More Mobile Cities: Further, larger metropolitan areas are more productive than smaller ones are. Santa Fe Institute research found that, generally, cities become more productive as they grow. Based on the research, metropolitan areas were found to produce a 15 per cent economic premium above their population advantage over smaller areas. However, this advantage was not related to higher population densities.[39] Thus, larger cities are not only more productive than smaller cities but they are also likely to be even more productive if people are able to access more of the metropolitan area in a specific period (Section 4.2, page 35).

Efforts to improve localized jobs-housing balances are likely to be ineffective and could lead to less productive metropolitan areas. So long as people live in labour markets (metropolitan areas), they will work where they like, and where they live will, experience shows, not be principally determined by their work location. Canada Post change of address data indicate that only 22 per cent of residential moves were for work related reasons in 2012.[40]

3.4 Infrastructure Costs

Urban containment policy is also predicated on the assumption that suburban expansion is too expensive. In fact, infrastructure is more affordable relative to incomes than in previous decades. There appears to be more myth than reality to this claim.

Population growth rates were much greater in the decades following World War II than in recent decades. Following the war, much of the growth in metropolitan areas was in the lower density suburban areas. Moreover, household incomes were considerably lower. Yet, governments provided sufficient infrastructure during that period of extraordinary growth through user fees, taxes and borrowing.

There are numerous examples of urban areas in Canada and the United States that have continued to provide sufficient infrastructure even as they expand geographically.[41] Further, large U.S. urban areas have substantially larger footprints than those in Canada, yet most continue to allow urban expansion and continue to afford the necessary expansion of infrastructure.

Some of the largest infrastructure expenses related to population growth (whether infill or suburban) are for quasi-commercial services such as water and wastewater. Indeed, many communities in the high-income world are served by private companies that charge market rates for water and wastewater, while earning returns on investment for their shareholders. This removes these services as budget concerns for municipal officials.

Where government is the provider, user fees are often charged to defray operating and infrastructure costs. Subsidies can be considered to be inappropriate. Properly costed infrastructure does not require municipal or regional growth limits, since prospective owners of new homes will make their own private decisions about whether the costs are affordable.

If consumers find such services to be more costly, they will reject purchasing the new housing.

Similarly, the new streets required by suburban development are provided by developers and internalized in the prices of the new houses. Even the anticipated cost savings from not building new roads for infill development is, at least in part, elusory. Roads are rarely expanded to handle the increased traffic congestion associated with higher densities. The failure to expand roads to prevent traffic congestion increases in developed areas can impose substantial costs, both in direct costs and overall costs to the economy (Section 4.2, beginning page 35). The price of not expanding roads in suburban areas can be to retard traffic service levels in densifying areas.

Further, infrastructure in established areas may be obsolete and may not have been designed to accommodate the planned higher densities. Upgrades to support the higher population densities of infill development will generally be more expensive than upgrades in greenfield areas.

A number of governments impose impact fees on developers in order to finance new infrastructure. As is virtually always the case with respect to taxation and fees, these costs are passed on to the eventual purchasers. Concerns have been raised about not only the accuracy of such charges, but also about the actual use of the funds for intended purposes once collected (in some jurisdictions. Further, there is the equity issue of imposing costs for new infrastructure on new home buyers, which is a departure from prevous practice.

Alternatives for Financing Infrastructure

Even so, municipalities may be reluctant to allow suburban expansion that they perceive will be expensive for their taxpayers.

Fortunately, there are models that can facilitate housing affordability for new entrants to the home ownership market without burdening municipal budgets. Legislatures have provided alternatives for such expansion that make it possible for suburban expansion to take place without burdening municipalities that have determined they are unable to afford urban expansion. For example:

(1) New municipalities can be incorporated, and they can then handle their infrastructure finance using taxes, user fees and bond financing without imposing additional costs on existing municipalities.

(2) Municipal utility districts can be established (such as in Texas and Colorado), in which developers set up independent and self-sufficient communities. Bonds are sold to pay for infrastructure and retired by the purchasers of new homes. Ultimately, these communities may combine with another municipality, incorporate separately as municipalities or remain unincorporated.

Alternatives such as these can remove cost barriers to suburban and exurban expansion.

3.5 Greenhouse Gas Emissions

Perhaps the justification most relied upon for urban containment is its perceived potential for GHG emissions reduction. This expectation is based on the generally lower GHG emissions per passenger kilometre from modes of transport that are labelled sustainable, including transit, cycling and walking.[42] It is also assumed that more-dense housing will materially reduce GHG emissions.

The reality is that urban containment policy is not cost-effective as a program for GHG emission reduction and, further, its potential is relatively limited.

3.5.1 Cost-effective GHG Emission Reduction: Any strategy for reducing GHG emissions should be cost-effective. Around the world, there is considerable concern among governments and others that the strategies adopted to reduce GHG emissions should not materially reduce economic growth because that would reduce affluence and increase poverty. For example, a report to a July 2008 G8 conference stated that the cost of GHG emission reduction could be low and that "the challenge can be met without damaging the economy."[43]

The United Nation's Intergovernmental Panel on Climate Change has provided a benchmark, estimating that sufficient GHG emission reductions can be achieved at no more than $20 to $50 per metric tonne. This economic standard is important. Any such expenditure represents a misallocation of resources and has the potential to slow down both household affluence and the economy.

It is simply not enough to choose policies that reduce GHG emissions. Policies must be chosen based on their relative cost-effectiveness; otherwise, there is the potential for interfering with economic growth, reducing job creation and household affluence while increasing poverty.

The cost-effectiveness metric is rarely considered in urban planning decisions or decisions with respect to urban containment policy. Yet, the cost of GHG emission reductions through urban containment policies can be substantial:

- In the United States, the longer-term cost per tonne of GHG emission reduction from urban containment related house price increases associated with urban containment policy was conservatively projected at nearly $20,000 per tonne.[44]
- The San Francisco Metropolitan Transportation Commission's (MTC) 2035 Transportation Plan estimated an annual cost of $200 to $800 per ton of GHG for its bus improvement strategies and from $800 to $5,800 per ton for its rail and ferry improvements. These costs are far above the $20 to $50 range cited by the IPCC. In contrast, MTC's freeway enhancement program had a cost of $22, well under the $50 IPCC maximum.[45]

Moreover, across-the-board approaches that would apply an overall percentage GHG emission reduction to all sectors would be both inappropriate and counterproductive. Policy decisions need to be made based upon their relative cost-effectiveness. The IPCC, for example, estimates that the potential for GHG reduction in the transportation sector is less than one-half of its contribution to overall GHG emissions.[46]

In the United States, McKinsey & Company and the Conference Board found that sufficient GHG emission reductions can be achieved without reducing driving or living in denser housing.[47] This is illustrated by the anticipated improvements in automobile fuel efficiency.

3.5.2 Limitations of Strategies to Reduce Driving: Urban containment policy generally seeks to reduce automobile travel, on the assumption that there is a virtual one-to-one relationship between kilometres of auto use and GHG emissions. In fact, as travel speeds slow down and congestion increases, as occurs in higher density areas, fuel economy suffers and the reduction in GHG emissions can be significantly smaller percentage than the reduction in driving, which renders the driving reduction strategy less (or not at all) effective.

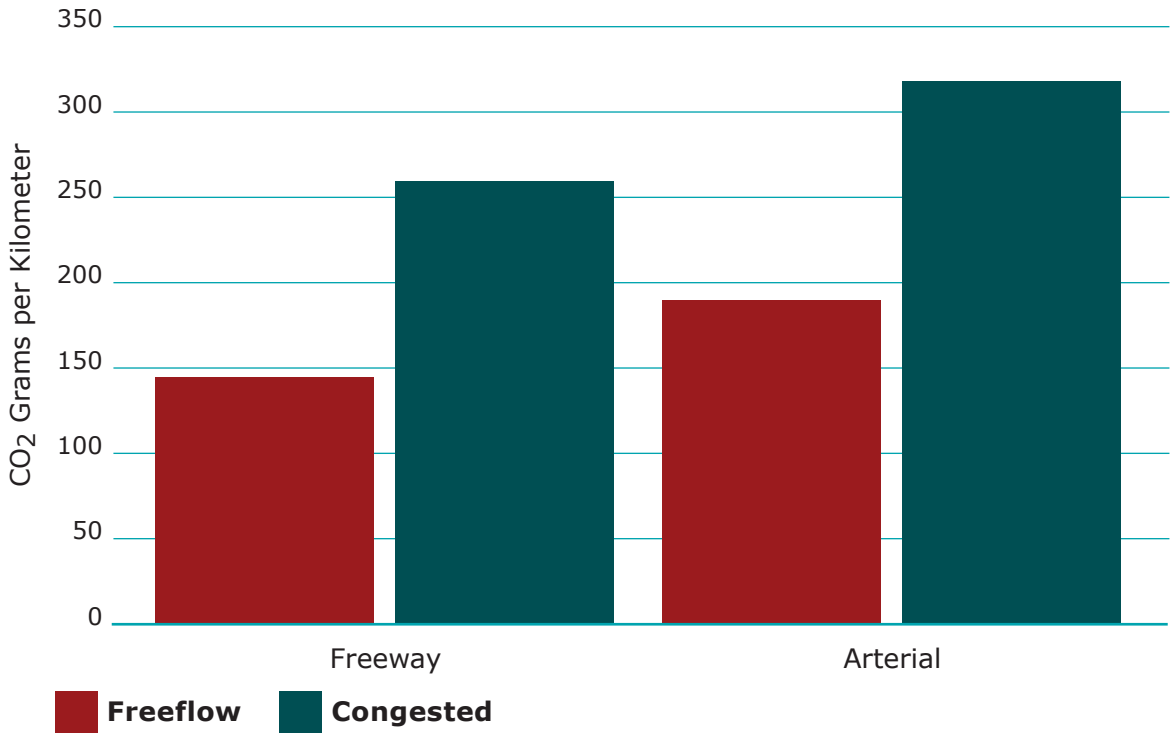
Transport Canada research indicates that the greater fuel consumption in congested traffic can result in GHG emissions over 70 per cent higher per kilometre than in free-flow traffic.[48] Thus, strategies that rely on reducing travel can have a much less significant effect on GHG emission reduction than planned, because of the greater congestion that occurs in higher density areas (Chart 3), as is indicated in Section 4.2, beginning page 35.

Moreover, because of the relationship between mobility and economic growth, efforts to reduce driving could result in more-modest economic growth.

CHART 3

CO_2 and Traffic Congestion

By type of roadway



Source: Transport Canada

3.5.3 Improved Fuel Economy: Substantial improvements are expected in GHG emissions from cars. The federal government has announced its intention to implement dramatically improved new fuel economy standards (4.3 litres per 100 kilometres).

Similar standards, already adopted in the United States, are projected to produce a reduction of more than 30 per cent in light-vehicle carbon dioxide emissions by 2040 compared with 2005, despite an increase of more than 30 per cent in driving (Chart 4). This would be an approximately 50 per cent reduction from the GHG emissions that would occur if fuel economy were not improved from the 2005 level (a "business as usual" or "BAU" scenario).[49]

An analysis by the United States Environmental Protection Agency forecasts that this improvement will be accomplished without increasing consumer costs, because the fuel savings would be greater than the cost of the regulation. This, obviously, would produce GHG emission reductions per tonne at well below the $20 to $50 range cited by the IPCC.

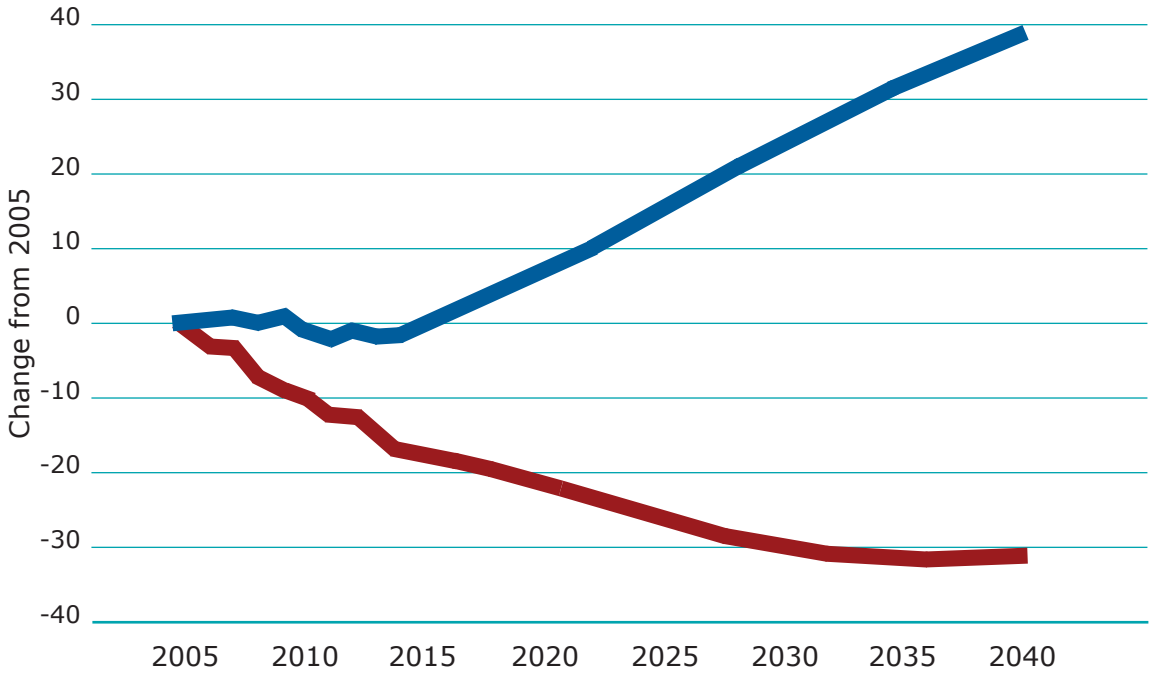
Further, should the recent, more-modest driving growth rate continue, the decline in GHG emissions could be even greater. Similar results are likely in Canada.

There is a potential for substantial vehicle fuel efficiency improvements even beyond those presently anticipated. The reduction in emissions could be accelerated by a broader adoption of hybrid cars. There are other potential technological improvements.

CHART 4

Gross CO_2 Emissions: United States

From automobiles 2005 to 2040



Source: U.S. Department of Energy Data

For example, two automobile manufacturers (Volkswagen and Audi[50]) could soon be making cars (two separate designs) that could travel 100 kilometres on approximately one litre of fuel (at least a 75 per cent improvement on the proposed standard). The automobile is well on the way to achieving a level of sustainability that would eliminate any need to require substantial lifestyle changes (as McKinsey & Company research indicates in Section 3.5.1, page 21).

The sustainability disadvantages of the car are quickly being overcome.

3.5.4 Housing: There is also an assumption that more-dense housing is associated with reduced GHG emissions. Much of the research, however, excludes common GHG emissions (from elevators, common area lighting, space heating, air conditioning, vertical pumping of water, etc.) in large multi-unit buildings, usually because data are not available. Research in Sydney, Australia, found that townhouses and detached homes produced fewer GHG emissions per capita than did higher density housing when common GHG emissions are included.[51]

Moreover, housing sustainability research is more often than not based on static, rather than dynamic, analysis, ignoring future improvements.[52]

The improvements in housing GHG emissions have already been substantial. According to the Canadian Home Builders Association, the residential sector has experienced a 5 per cent net reduction in GHG emissions since 1990, while GHG emissions have risen 18 per cent overall. This improvement in housing GHG emissions has occurred despite a substantial increase in housing units and an increase in average new house size.[53]

3.5.5 Ineffectiveness of Urban Containment: A growing body of research indicates that urban containment policy would be ineffective in reducing GHG emissions.

In a congressionally mandated study, the U.S. Transportation Research Board (TRB) evaluated the potential GHG emission reductions from urban containment policy. The TRB report examined two scenarios, 25 per cent and 75 per cent densification strategies (the drafting committee noted doubts that the 75 per cent densification strategy would be politically acceptable).[54]

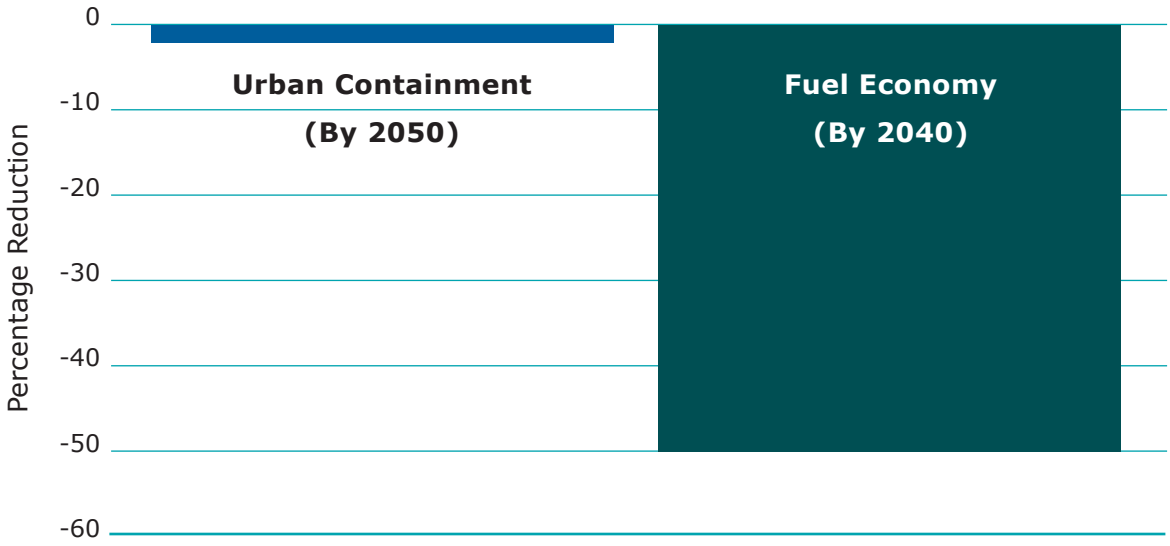
The 25 per cent densification strategy was projected to reduce GHG emissions from 2000 by 1.5 per cent, after the reductions that would occur from improved automobile fuel efficiency (Section 3.5.3, page 23), which is unrelated to urban containment policy. The more draconian (and doubtful) 75 per cent densification strategy would reduce GHG emissions by 9.2 per cent.[55] The costs per tonne of the GHG emission reductions from urban containment policies would likely be well above the IPCC $20 to $50 range (Section 3.5.1, page 21).

Both these GHG emission reduction figures pale by comparison with the 50 per cent drop in automobile-related GHG emissions projected as a result of fuel economy improvements *10 years earlier (2040)*, as is indicated in Figure 5. Further GHG emission reductions from automobiles seem likely in the 2040 to 2050 time frame (Section 3.5.3, page 23).

CHART 5

Fuel Economy and Urban Containment: U.S.A.

Impact on greenhouse gas emission reduction



Source: U.S. Department of Energy and Transportation Reasearch Board

Researchers at Cambridge University and the Universities of Leeds and Newcastle found the gains from urban containment policy so slight that they concluded urban containment policy "should not automatically be associated with the preferred spatial growth strategy."[56]

3.5.6 Prerequisites to Environmental Sustainability: There are important prerequisites to environmental sustainability. Perhaps the most important is political acceptability. Strategies are not likely to succeed if they require people to change their lives in ways that require material sacrifices. Strategies that are not politically acceptable will not be implemented in a country in which government requires the consent of the governed.

IPCC Chair Rajendra Pachauri characterized this situation when he said that India really does not "have any choice but to use coal" (despite coal's GHG emission intensity).[57] The implication is that the people of India will not permit their political leadership to impose serious economic hardship in order to reduce GHG emissions.

Thus, three dimensions of sustainability are prerequisites to environmental sustainability. GHG emission policies must be cost-effective (cost no more than the $20 to $50 range per tonne), be economically sustainable (not materially interfering with economic growth) and be politically acceptable. Unless these three conditions are met, it could be impossible to achieve material reductions in GHG emissions.

3.5.8 Conclusion on Sustainability: *Urban containment is not necessary for achieving sustainability.* Urban containment is costly as a strategy for reducing GHG emissions. Moreover, urban containment imposes significant costs on the economy, which lead to unnecessary reductions in the quality of life, which will be described next.

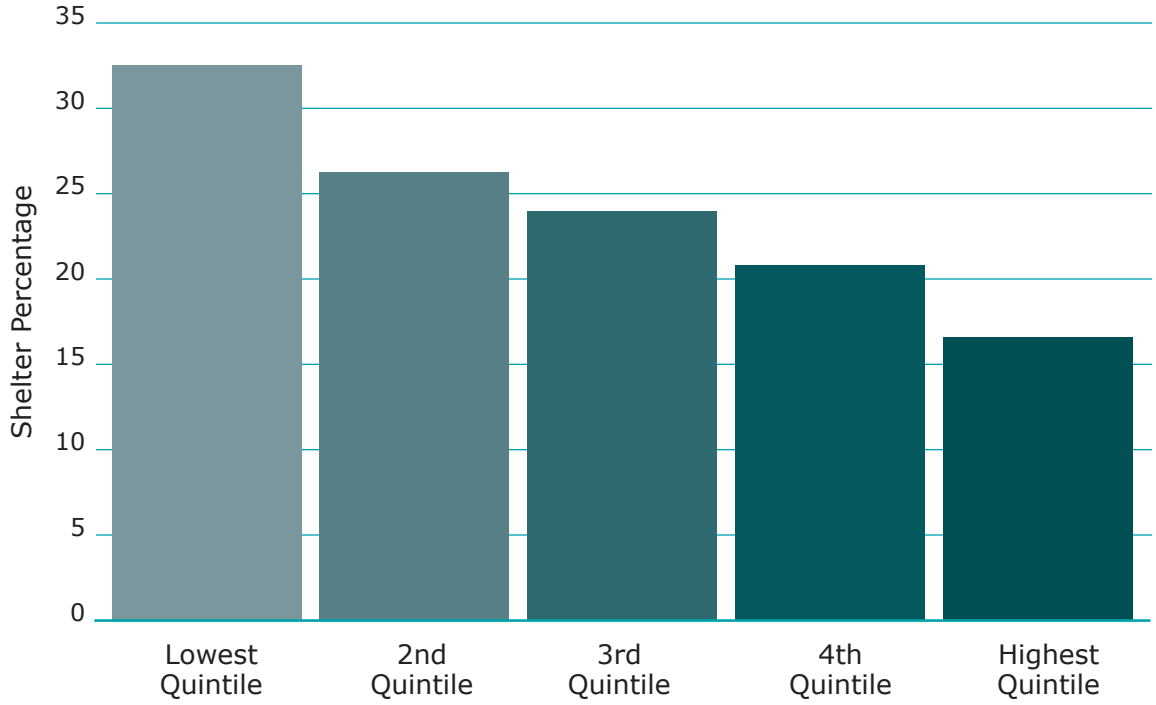
4. Urban containment: social and economic consequences

Housing is the largest element of household expenditure, which makes it a principal element in the cost of living. If housing costs are too high, households will have less discretionary income to spend on other products and services and will thus have a lower standard of living. At the same time, this leads to reduced job creation (higher levels of unemployment), because of the lower level of consumer purchases. Higher housing costs are particularly burdensome to younger households and represent an intergenerational transfer of wealth. Lower-income households and the increasing share of immigrant households are also disadvantaged by the house price increases inherent in urban containment policy. Generally, household expenditure for housing is higher among lower-income households (Chart 6).[58]

CHART 6

Housing: Largest Household Budget Item

Canada National 2010



Source: Statistics Canada

Urban containment policy has been associated with undesirable consequences. These include higher housing costs (and a higher cost of living) and greater traffic congestion, which is associated with reduced economic growth. Generally, government agencies failed to consider these consequences when they implemented urban containment policy. Further, urban containment policy is associated with less robust economic growth in metropolitan areas.

4.1 Urban containment policy and housing affordability

The principal strategy of urban containment policy, the urban growth boundary,[59] places severe limits on the amount of land that can be used for residential development on or beyond the urban periphery. This rationing of land, like rationing of any good or service, leads to artificially higher land prices, which increase house prices.

> When the supply of any commodity is restricted, the commodity's price rises. To the extent that land-use, building codes, housing finance, or any other type of regulation is binding, it will worsen housing affordability.[60]

Other strategies of urban containment policy have similar effects. Infill requirements limit the volume of housing that can be developed on or beyond the urban fringe, creating upward pressure on prices. Building moratoria limit the amount of housing that can be built, similarly leading to higher house prices than would otherwise be expected.

Regrettably, the housing affordability consequences were rarely, if ever, considered by government agencies as they imposed urban containment policy. However, the impact was clearly predictable from economic theory, and in at least one case (Vancouver), agency files contain analysis that raises the issue.[61]

4.1.1 Economic Evidence: The association between urban containment policy and higher house prices has been documented in the economic literature. Perhaps the earliest evaluation of a restrictive land-use regulation was in the two-volume *The Containment of Urban England,* which was a five-year project by a team of academics led by urbanologist Sir Peter Hall (1973) of University College, London. The subject of this early 1970s work was the housing market as it had evolved since the enactment of the *Town and Country Planning Act, 1947.* Hall and his colleagues found that "[p]erhaps the biggest single factor of the 1947 planning system is that it failed to check the rise in land prices which is probably the largest and most potent element of Britain's postwar inflation." The results are characterized as being inconsistent "with the objective of providing cheap owner occupied housing." Moreover, Hall et al. noted that the planning system has imposed the greatest burdens on lower-income households.

Former governor of the Reserve Bank of New Zealand Donald Brash wrote in the introduction to the *4th Annual Demographia International Housing Affordability Survey:* "The affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land."[62]

In reports commissioned by the Blair government, former Bank of England Monetary Policy Committee member Kate Barker documented a strong relationship between unaffordable housing prices and urban containment policy.[63]

A New Zealand government report by Arthur Grimes (2007), Chairman of the Board of the Reserve Bank of New Zealand, attributed the loss of housing affordability

in the nation's largest urban area, Auckland, to densification policies. In another report, Grimes (2009) found that per-acre prices just inside Auckland's urban growth boundary were 10 times that of comparable land on the other side of the boundary.

Former World Bank economist Steven Mayo indicated that house prices in cities with stricter regulatory policies rose 30 to 60 per cent relative to less restrictively regulated cities over a 15-year period. He further noted:

> Relative shifts in housing costs are in some cases equivalent to doubling potential residents' combined federal and state income tax, creating powerful disincentives for moving and for the functioning of labor markets.
>
> These and similar findings suggest that systematic policy mistakes have been made, that their costs have been high, and that it is time for a general change in thinking about the aims and instruments of land and housing policy.[64]

In an analysis and compendium of research on the association between stronger land-use regulation and higher house prices, Paul Cheshire of the London School of Economics concluded that urban containment is incompatible with housing affordability and price stability.[65]

Richard Green of the University of Wisconsin, along with Steven Malpezzi and Stephen Mayo, performed an econometric analysis of 44 U.S. metropolitan areas and found that heavily regulated metropolitan areas always had constricted housing supplies (low elasticities).[66]

Dartmouth University's William Fischel noted that California house prices were similar to those in the rest of the nation as late as 1970. By 1990, however, California house prices had escalated well ahead of the nation's. Fischel found that the higher prices could not be explained by higher construction cost increases, demand, the quality of life, amenities, the property tax reform initiative (Proposition 13), land supply or water issues. He associated the higher cost prices to the expansion of land-use restrictions.[67]

4.1.2 Investment (Also Referred to as Speculation) and Price Volatility: As urban containment policy drives up house prices, markets become targets for investors who may also be called speculators or flippers (investors who buy and sell houses in an escalating market, not unlike people speculating in stock markets). Urban containment markets also tend to have more volatile price fluctuations.[68]

4.1.3 Intensifying the Housing Affordability Consequences of Urban Containment: Emerging strategies to force new housing into even more-confined areas within the urban footprint could increase prices. Often going under the term "transit-oriented development,"[69] such programs seek to locate housing near transit stations and along transit corridors. This development would necessarily be more intense and is at least partially based on research that assumes a "sea change" is occurring in housing preferences, such that households will prefer smaller houses on smaller lots and multi-family dwellings (such as high-rise apartments and condominiums).

Much of the urban planning in California is based on such research, which projected increases in demand for higher-density living, which has not occurred.[70]

Additional sources for the housing affordability consequences of urban containment policy are available in "The Association between Prescriptive Land-use Regulation and Higher House Prices: Literature Review on Smart Growth, Growth Management, Livability, Urban Containment and Compact City Policy."[71]

4.1.4 Competitive Land Supply: The housing affordability problem occurs because of the failure to maintain a "competitive land supply." Brookings Institution economist Anthony Downs describes the process, noting that more urban growth boundaries can convey monopolistic pricing power on sellers of land if sufficient supply is not available, which, all things being equal, is likely to raise the price of land and the housing that is built on it.

> If a locality limits to certain sites the land that can be developed within a given period, it confers a preferred market position on those sites. … If the limitation is stringent enough, it may also confer a monopolistic power on the owners of those sites, permitting them to raising land prices substantially.[72]

The principal element in the unaffordability of housing that has emerged in urban containment markets around the world is the resultant escalation in land costs, not the cost of building the houses (See Sidebar 2).

4.1.5 Sufficient Land for Housing Affordability: Strongly and tightly drawn urban growth boundaries are a common feature of many densification policy metropolitan areas. Such urban growth boundaries are the ultimate densification

Sidebar 2

Land and house construction costs

The principal difference in the cost of housing relative to household incomes around the country (and within other high-income world nations) is the cost of land.

For example, housing construction costs in Winnipeg are just 5 per cent below those in Vancouver.[73] Yet, Vancouver's house prices are at least 160 per cent higher than Winnipeg's are relative to household incomes. The difference is virtually all in the land prices, which are driven up strongly by the rationing effect of urban containment policy, especially urban growth boundaries.

Vancouver has the highest housing cost relative to incomes of any major Western world metropolitan area reported upon in the *Demographia International Housing Affordability Survey* (Canada, Australia, Ireland, New Zealand, the United Kingdom and the United States).

Moreover, there may be a perception that land costs are reduced by the smaller lot sizes imposed by smart growth. This represents a fundamental misunderstanding of land markets. Neither land nor any other good or service has an inherent value in the market. Prices are established through the interaction of supply and demand, and precise changes in price are not easily susceptible to reliable prediction, even by economic formulas. In the United States, it has been shown that smaller building lots have led to substantially higher land prices per new dwelling where urban containment policy has been adopted.[74]

policy, because they outlaw development in most urban fringe areas where the market would supply new housing. Some regulatory systems specify a requirement for maintaining a supply of land for a particular period of residential expansion, such as 10 to 30 years.

The problem with such measures is that they only provide sufficient land to meet demand without regard to the price-increasing influence of the regulation. The ultimate measure of sufficient land supply is the *affordability* of land on the urban fringe, not a theoretical allocation of land to meet demand. Rising house prices relative to household incomes can be an indication of an insufficient affordable land supply.[75]

4.1.6 International Developments: There is evidence of increasing political concern about the effect of urban containment policy on housing affordability.

The New Zealand government announced policies to reform land-use policies and presented the consequences of urban containment policy in that nation. Deputy Prime Minister Bill English described the problem in his introduction to the *9th Annual Demographia International Housing Affordability Survey:*

> It costs too much and takes too long to build a house in New Zealand. Land has been made artificially scarce by regulation that locks up land for development. This regulation has made land supply unresponsive to demand. When demand shocks occur, as they did in the mid-2000s in New Zealand and around the world, much of that shock translates to higher prices rather than more houses. It simply takes too long to make new land available for development.[76]

Recent polling showed a rising concern in the electorate about the loss of housing affordability, which had deteriorated from a median multiple (median house price divided by median household income) of less than 3.0 in recent decades to 6.7 in the nation's largest metropolitan area, Auckland. By an almost 2 to 1 margin, respondents indicated that the nation's government should be "doing something" about housing affordability. The support for reforms to make housing more affordable was significantly stronger in the 18 to 34 age group, where the margin was more than 3 to 1.[77]

In the United Kingdom, the Conservative-Liberal Democrat government is seeking the most significant reforms of urban containment policies in 65 years. Planning Minister Nick Boles called Britain's lack of housing affordability "the biggest social justice crisis we have."[78] Brookings economist Downs, who characterizes the net regressive redistribution of wealth as "socially undesirable," has also reflected this.[79]

More recently, the New South Wales, Australia, government announced a major liberalization of land-use policy that will substantially increase housing development opportunities in suburban areas as well as exurban areas. This policy was initiated in response to the overly strict land-use regulations that have been in place in Sydney for decades and which have resulted in a housing affordability rating that is worse (median multiple of 8.3)[80] than that of any major metropolitan area in Canada, Australia, the United Kingdom, Ireland or the United States, with the exception of Vancouver (median multiple of 9.5).

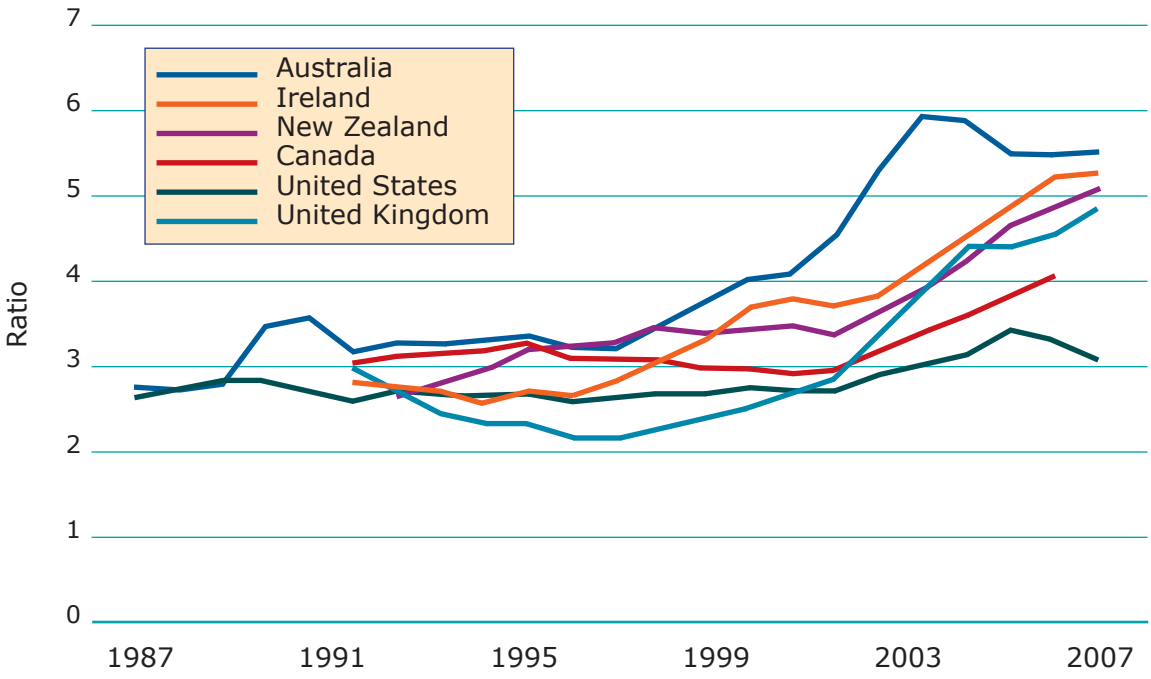
An affordably priced housing supply is important to the functioning of a healthy national economy. The United States illustrates this in the extreme. In a number of markets, house prices escalated by two to three times relative to incomes and reached unprecedented levels. When these prices fell during the housing collapse, they not only sent the U.S. economy into its worst decline since the Great Depression but also generated a worldwide financial crisis (See Sidebar 3, page 34).

4.1.7 Housing Affordability in Canada: For most of the period following World War II, average house prices were three times or less household incomes, which mirrored the experience in the United States, the United Kingdom, Australia, Ireland and New Zealand (Chart 7). However, house prices have risen substantially relative to incomes in some metropolitan areas that have adopted urban containment policy (Chart 8). The result is that the majority of markets with urban containment policies now have a price to income ratio (median multiple) of more than 5.0, with the highest being 13.5 in Hong Kong (Vancouver is second-least affordable at 9.5). By contrast, no major market without an urban containment policy has a median multiple above 4.0.[81]

As late as 2004, Canada's major metropolitan markets were the most affordable out of the six nations covered in the *Demographia International Housing Affordability Survey.* Overall, housing affordability has deteriorated strongly since that time and at a rate greater than the other five nations (Chart 8, next page). Canada's deteriorating housing affordability was led by large house price increases relative to

CHART 7

House Price to Income Ratios*



Various combinations of median and mean measures of house prices and incomes used depending on availability.
Sources: ABS; BIS; Bureau of Economic Analysis; Central Statistics Office Ireland; Communications and Local government (UK; National Satistics website; OECD;REIA; Reserve Bank of New Zealand; Statistics Canada; Statistics New Zealand; Thomson Financial; Reserve Bank of Australia.

incomes in Toronto (50 per cent), Montréal (65 per cent), Vancouver (80 per cent) and Calgary (40 per cent) since 2004 (Chart 9). Substantial housing affordability losses have also occurred in other metropolitan areas such as Saskatoon, Victoria and Kelowna.

CHART 8

Change in Median Multiple (2005/5-2012)

Major metropolitan areas: annual rate

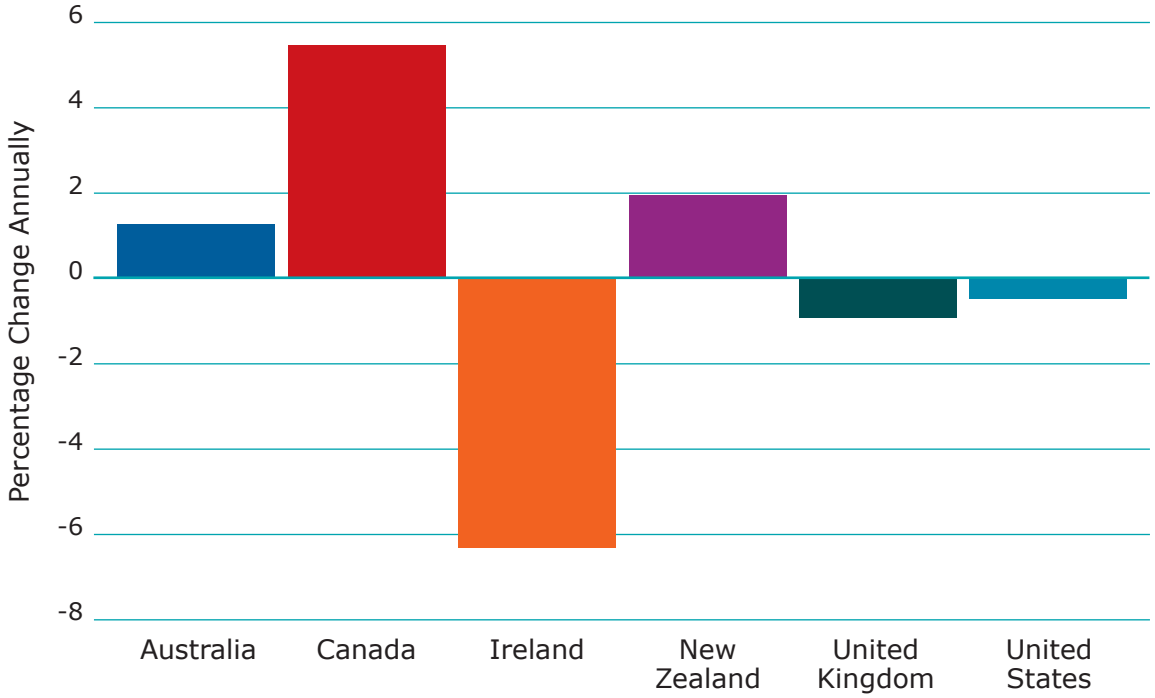
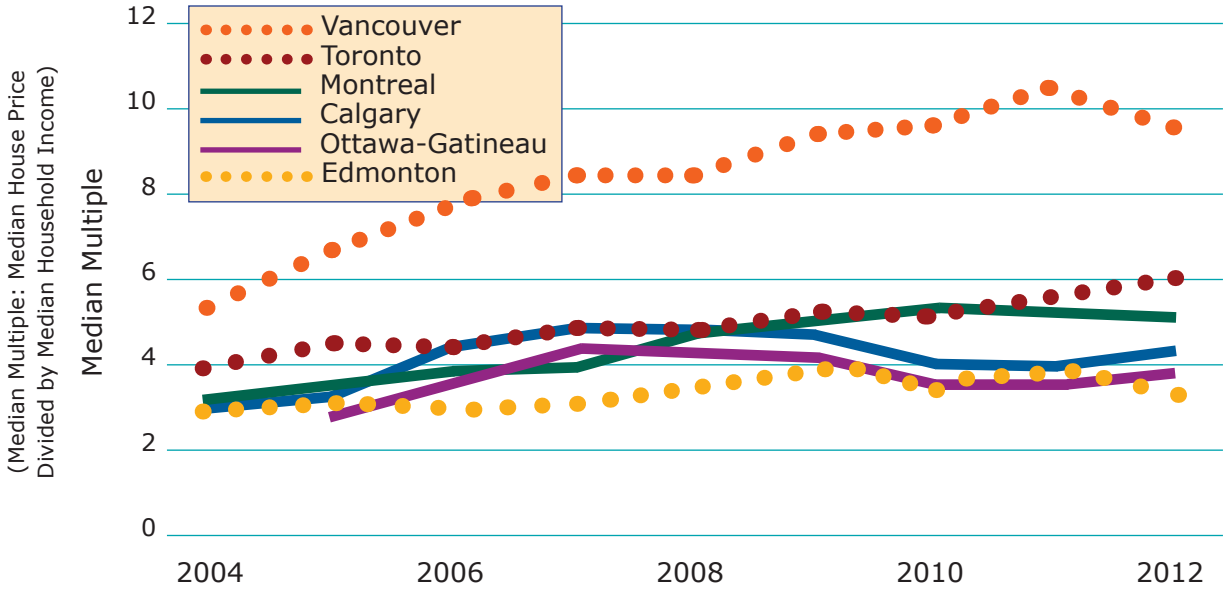


CHART 9

Housing Affordability (2004-2012)

Metropolitan areas of over 1,000,000 people



Source: 2012 Demographia International Housing Affordability Survey

4.1.8 Urban Containment, a Potential Housing Bubble, and Monetary Policy: Concern has even been expressed that a housing bubble may be developing. This is an ominous prospect in view of the disastrous effect of the U.S. housing bubble on its economy. Between 2004 and 2012, house prices relative to incomes in Canada increased more than they did in the United States, Australia or New Zealand. The increase was more than 50 per cent relative to household incomes; however, the impact on household budgets has been masked to some degree by historically low interest rates. This seems likely to be only temporary. RBC Global Asset Management chief economist Eric Lascelles said: "Of course, rock-bottom interest rates won't last forever, and the key change on the horizon is higher borrowing costs via the Bank of Canada."[82]

The escalating house prices have also caught the attention of the Bank of Canada[83] and others. More recently, most of the largest banks have had their credit ratings downgraded by international credit rating agencies, at least in part out of concern for the banks' inordinately large exposure to large levels of mortgage debt.

Moreover, house price increases could accelerate even more across the nation in metropolitan areas that have more-recently implemented urban containment policy, such as Toronto, Montréal, Calgary and fast-growing Saskatoon. Even larger household debt ratios and bank exposures to inordinately large mortgage portfolios could be the result. Finally, the likely eventual increase in mortgage rates would further increase household debt levels.

As the nation's reserve bank, the Bank of Canada has the monetary policy goal of keeping "inflation near 2 per cent."[84] This can be challenging in a market of rapidly rising house prices. Yet, house prices are not rising principally because of normal market forces. The increases are primarily the result of provincial and metropolitan urban containment policy. Thus, the largest item of consumer spending, and potentially a driver of inflation, is largely under the control of regional and provincial land-use authorities, beyond the policy purview of the Bank of Canada.[85] This weakening of the Bank of Canada's power may be a matter for parliamentary concern.

4.1.9 Demographic Challenges: Further, the more-dense residential development favoured by urban containment policy discourages childbirth. The concern is that the emerging demographic imbalance from lower fertility rates could make financing pensions and other social services more difficult in the future. This could seriously slow economic growth, which could be a more fundamental threat.[86] Harvard economist Benjamin Friedman suggested from his historical review that economies that fail to grow tend to lapse into instability.

Dense housing has already been identified as a contributing factor to lower fertility rates in East Asia.[87]

4.1.10 Equity and Opportunity: Virtually all governments seek better standards of living for their residents. Yet, government policies can work against this objective.

It is generally inappropriate for government policy to materially increase the cost of goods or services, unless there is a compelling public purpose.

The principal justification, environmental sustainability, is not materially addressed by urban containment policy. Further, as noted above, urban containment policy has serious economic consequences that reduce household affluence and harm the overall economy.

The result is that many households are denied equality of opportunity, as they are priced out of the housing that they would prefer by government policies and that their predecessors were able to afford in the more liberal land-use regulatory environment that preceded urban containment. Urban containment policy is exclusionary, with incumbent homeowners favoured at the expense of the younger or less affluent. This results in not only a huge intergenerational transfer of wealth but also an unnecessary worsening of the quality of life for those not fortunate enough to have arrived to the country earlier or to have been born earlier.

Sidebar 3

Geographic and urban planning concentration of the U.S. housing bubble

The U.S. experience illustrates the devastation that can result from higher house prices. When the housing bubble burst and prices began falling in U.S. markets, the greatest U.S, economic decline since the Great Depression of the 1930s occurred. Moreover, the economic decline in the United States generated the international Great Financial Crisis.

However, the U.S. housing bubble and the subsequent house price losses were not a national phenomenon. Approximately 75 per cent of the house price losses from the peak to the beginning of the Great Financial Crisis (usually dated from the Lehman Brothers bankruptcy on September 15, 2008) were in just 11 metropolitan markets in California, Florida, Arizona, Nevada and the Washington, D.C., area. Each of these markets had lost its competitive land supply due to urban containment policies.

In the four large coastal California areas (Los Angeles, San Francisco, San Diego and San Jose), the median multiple reached 10 or more at the same time as the underlying demand for housing was seriously reduced.

Between 2000 and 2009, approximately 2,000,000 people (net) moved from these four metropolitan areas to other parts of the nation. Normal underlying demand could not have been the cause of the price increases. However, there is evidence that investment (pejoratively called speculation) was rampant as would be expected in any market with high and escalating house prices.

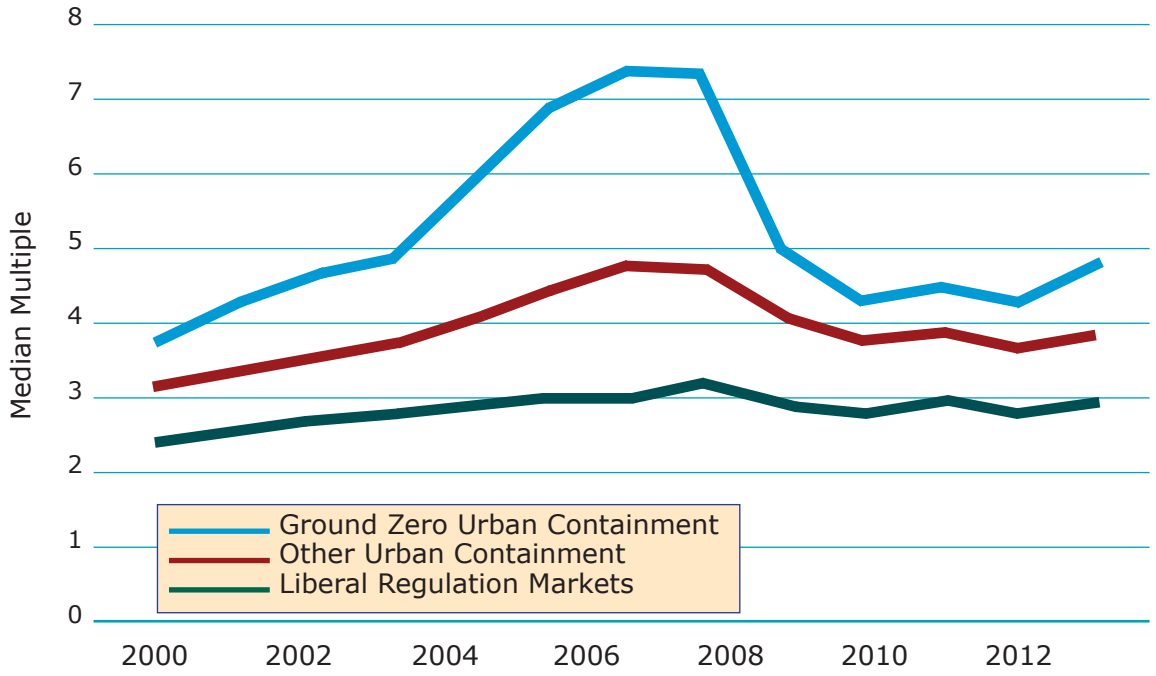
Figure 10 indicates that the liberal markets (those without urban containment policy) experienced only modest increases in the median multiple during the bubble, and for the most part remained within the 3.0 maximum affordability range. The 11 ground zero urban containment markets experienced huge median multiple increases (huge losses in housing affordability). Other urban containment markets experienced substantial increases in their median multiples, though less than the ground zero markets.

The most recent data indicate that median multiples were much higher in 2012 than in 2000 in the two categories of urban containment markets. The liberal markets are within the 3.0 historical maximum for housing affordability.

CHART 10

Housing Affordability (2000-2012)

Largest U.S. metropolitan areas: median multiple



Sources: 1980-2009: from Harvard University; 2010-2013 from Demographia

4.2 Urban Containment Policy and Urban Transport

Greater mobility—the ability to travel quickly throughout the metropolitan area—improves the economic performance of cities.[88] This broadens affluence and reduces poverty. Prud'homme and Lee (University of Paris), Hartgen and Fields (University of North Carolina-Charlotte), Cervero (University of California) and others have shown that the more jobs people can reach in a fixed period of time (such as 30 minutes), the more economically productive the metropolitan area is likely to be.

Thus, to achieve the maximum benefits of mobility in the metropolitan area requires that travel times be minimized. In the modern metropolitan area, this requires substantial reliance on automobiles.

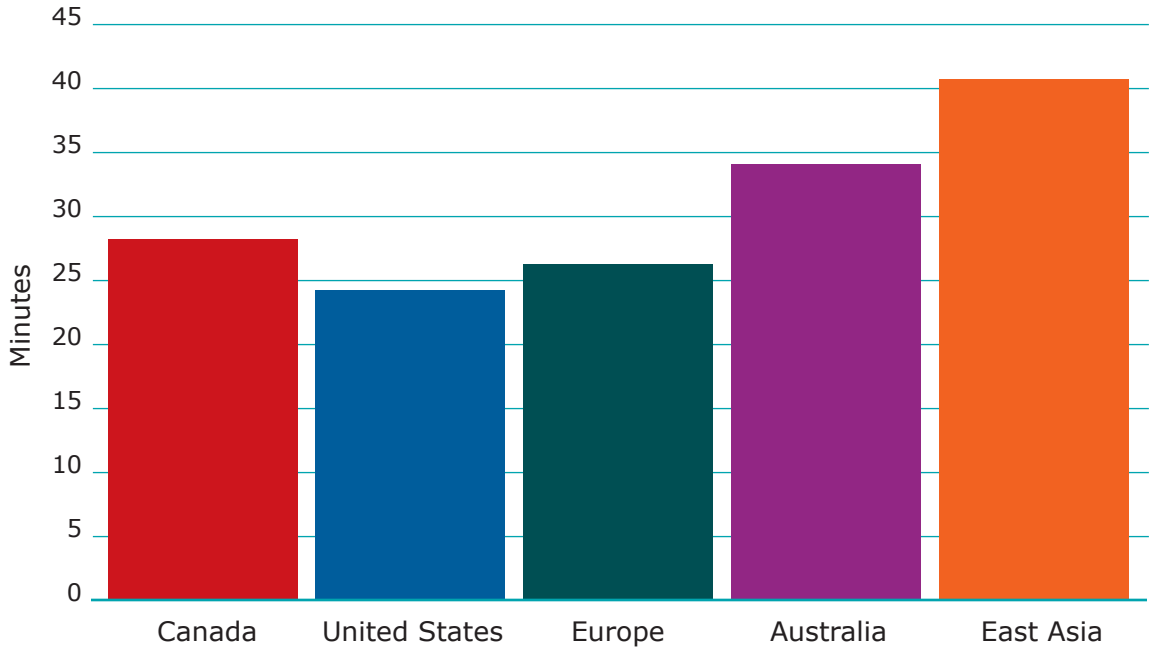
4.2.1 Work Trip Travel Times: The Toronto Board of Trade, the Federation of Canadian Municipalities and the Canadian Urban Transit Association expressed concern that Canada's work trip travel times are so long they interfere with the competitiveness of its metropolitan areas (Chart 11, next page). The nation's largest metropolitan areas have disproportionately longer one-way commutes to work (with the exception of Edmonton).[89]

The view has been expressed that economic competitiveness could be improved by attracting automobile users to transit.[90] However, Statistics Canada data show that commuting by transit takes longer than commuting by car. As noted above, the average automobile one-way work trip travel time is 27 minutes in the major

CHART 11

One-way Work Trip Travel Time

Canada, United States, Europe, Australia and East Asia



metropolitan areas, while the average transit work trip travel time is 44 minutes (Section 3.2.1, page 16). Longer work trip travel times, whether by automobile or by transit, are associated with less economic growth and less competitive metropolitan areas.

Nonetheless, transit, cycling and walking have important roles, especially for travel to downtown and in the highest density urban core areas. However, their potential for replacing automobile travel is small. Automobiles will generally be used considerably more than transit will, while cycling and walking will be used considerably less often compared with automobile use (See Section 3.2.3, page 16). The focus of transport policy should be on travel times, not the mode of transport. Such a focus is likely to yield improved economic outcomes.

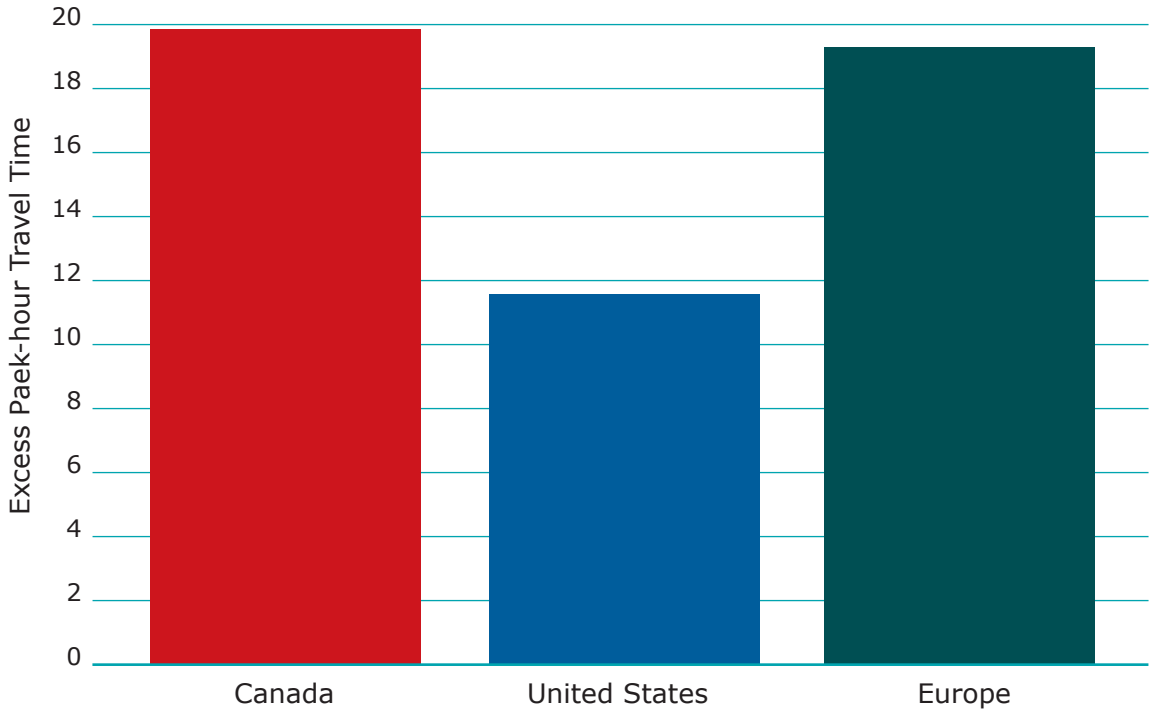
4.2.2 Traffic Congestion: The largest metropolitan areas of Canada generally have traffic congestion that is on par with Western Europe and is more intense than that of the United States. In Canadian metropolitan areas with a population of more than 1 million, drivers experience 75 per cent more peak-hour travel delay than drivers in the United States do (Chart 12, next page).

One of the most important objectives of urban containment policy is to increase urban densities. This tends to lead to higher traffic volumes, greater traffic congestion,[91] greater local air pollution and longer travel times. This reality contradicts urban planning claims.

CHART 12

Traffic Congestion: National Data (2011)

Canada, United States and Europe



Sources: Calculated from INRIX data.

An analysis by Ewing and Cervero associates a doubling of density with only a modest (approximately 5 per cent) decline in per capita automobile use.[92] In other words, traffic densities rise almost as sharply as population densities do. A density calculator developed using Sierra Club data associates a doubling of population density with a 60 per cent increase in driving.[93] Moreover, our review of more than 180 metropolitan areas in Europe, North America and Asia indicated a strong relationship between higher density and greater traffic congestion. The same research, covering 109 metropolitan areas, also indicated that higher urban population density was strongly associated with slower work trip travel times.[94]

4.2.3 Higher Density Health Impact: The concerns about higher levels of traffic congestion relate to more than just the competitiveness of metropolitan areas. Greater congestion inevitably means a greater intensity of air pollution emissions along more-congested freeways, arterials and boulevards. The result is greater exposure to the health risks of air pollution in the immediate area, with negative health effects.[95]

A continuation of urban containment policies, along with the anticipated higher densities, is likely to lead to even more intense traffic congestion and diminished economic competitiveness.

5. Urban containment: broader economic impact

Economic research also identifies slower than expected economic growth in metropolitan areas with urban containment policy. Urban containment policy has been associated with higher commercial development costs[96] and higher retail prices.[97]

U.S. Federal Reserve Board economist Raven Saks found that employment growth is 20 per cent less than expected in U.S. metropolitan areas that have stronger land-use policies.[98]

Another econometric analysis concluded that there was an association between the more-restrictive housing supply limitations from more-strict land-use regulation in the Randstadt (Amsterdam-Rotterdam-The Hague) and slower economic growth.[98]

After the collapse of the housing market, the U.S. Congress commissioned a report on the causes of the financial crisis. The U.S. Financial Crisis Inquiry Commission identified four hypotheses as possible causes for the U.S. housing bubble. One of the hypotheses involved strong land-use restrictions. The commission stated:

> "**Land use restrictions.** In some areas, local zoning rules and other land use restrictions, as well as natural barriers to building, made it hard to build new houses to meet increased demand resulting from population growth. When supply is constrained and demand increases, prices go up."[100]

As noted above, the disproportionate population share in the Golden Horseshoe region (focused on Toronto) means that its economic performance is especially important to the economy. Substantial housing affordability losses occurred since urban containment policy was adopted in Ontario (in the middle of the last decade). This and the other negative economic effects of urban containment should be of concern with respect to longer-term national economic growth.

Consistent with economic theory, excessive regulation can be expected to reduce economic growth and competitiveness.

...the disproportionate population share in the Golden Horseshoe region (focused on Toronto) means that its economic performance is especially important to the economy. Substantial housing affordability losses occurred since urban containment policy was adopted in Ontario...

6. Toward a new paradigm in urban policy

Urban containment policy tends to reduce the standard of living, principally by materially increasing house prices and thus reducing discretionary income. Urban containment policy further reduces the standard of living by increasing traffic congestion, which increases travel times and thus reduces economic growth. Further, there are overall negative consequences that reduce the rate of economic growth and household affluence. Each of these three factors is associated with greater poverty.

At the same time, urban containment policy neither materially nor cost-effectively contributes to environmental sustainability. *Urban containment policy is thus unnecessary to the reduction of GHG emissions.*

Angel cautioned[101] that the lack of sufficient land for urban expansion could extinguish "any hope that housing will remain affordable, especially for the urban poor." He decries the notion that "cities should simply be contained and enclosed by greenbelts or impenetrable urban growth boundaries" as "uninformed and utopian," because it makes sustainability "an absolute end that justifies all means to attain it." He says that other strategies should be used to achieve environmental sustainability.

With its emphasis on urban form and the mode of transport, urban planning focuses on means. This focus is justified only to the extent that the urban form and mode of transport contribute to the objective of improving household affluence. Even more important is the fact that the focus on the means of urban form and urban transport can substantially interfere with the objective of economic growth and a better standard of living, as shown above.

The need for a new paradigm

There is a need for a new paradigm in urban policy. The focus should be on objectives, not means. Urban planning specifically excludes policies that reduce household affluence, increase poverty or slow economic growth.

Housing affordability should be maintained or restored, where it has been lost. Performance measures should be established to ensure sufficient land for development *at historically competitive prices.*

Urban transport policy should be focused on maximizing mobility within the metropolitan area. Public funding for urban transport, whether transit or highways, should be allocated on a *least cost per reduced hour of travel delay.*[102]

The objectives of encouraging economic growth, facilitating greater household affluence and alleviating poverty can be addressed in the context of sufficient environmental protection and prudent expenditure of public resources.

Endnotes

1. Many of the references in this report are to articles that provide additional discussion. These articles contain primary source references.
2. In this report, the term "city" will denote the urban organism in one of its two manifestations. The first is the metropolitan area (the functional city), which is the labour market and includes both urbanization and economically connected rural territory. The second is the urban area, which is the area of continuous urban development. Statistics Canada uses the term "population centre" for the urban area. In popular usage, the term "city" is also applied to municipalities such as the city of Calgary or the city of Vancouver. Municipalities are virtually always only a part of the urban organism, at least in large metropolitan or large urban areas. To avoid confusion, the term "municipality" will denote incorporated cities.
3. Bertaud, Alain. "The Spatial Organization of Cities: Deliberate Outcome or Unforeseen Consequence?" World Development Report 2003: Dynamic Development in a Sustainable World. Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/02/13/000265513_20040213120824/Rendered/INDEX/wdr27864.txt.
4. Cox, Wendell. "Dispersion in the World's Largest Urban Areas," New Geography, February 6, 2013. Retrieved from http://www.newgeography.com/content/003468-dispersion-worlds-largest-urban-areas.
5. Urban areas with more than 10 million population.
6. Cox, Wendell. "Dispersion in the World's Largest Urban Areas," New Geography, February 6, 2013. Retrieved from http://www.newgeography.com/content/003468-dispersion-worlds-largest-urban-areas.
7. Carney, Mark. Economic Outlook, Bank of Canada, April 27, 2012. Retrieved from http://www.bankofcanada.ca/wp-content/uploads/2012/04/presentation-270412.pdf.
8. For a more general description of similar trends, see Joel Kotkin's The Rise of Post-familialsim: Humanity's Future? Retrieved from http://www.joelkotkin.com/sites/default/files/The%20Rise%20of%20Post-Familialism%20(ISBN9789810738976).pdf.
9. Urban areas are areas defined by continuous urban development. Metropolitan areas are labour markets and include the urban area along with economically connected territory outside the principal urban area, most of it rural.
10. Statistics Canada calls larger labour market areas "census metropolitan areas" and smaller labour market areas "census agglomerations." See http://www12.statcan.gc.ca/census-recensement/2011/ref/dict/geo009-eng.cfm.
11. Cox, Wendell. "Special Report: Census 2011: Urban Dispersion in Canada," New Geography, February 14, 2012. Retrieved from http://www.newgeography.com/content/002672-special-report-census-2011-urban-dispersion-canada.
12. Cox, Wendell. "Dispersion in the World's Largest Urban Areas," New Geography, February 6, 2013. Retrieved from http://www.newgeography.com/content/003468-dispersion-worlds-largest-urban-areas.
13. The "combined statistical area," which stretches from New Haven, Connecticut, to Trenton, New Jersey; Pike County, Pennsylvania; and the eastern end of Long Island.
14. The term "urban sprawl" has become pejorative. Yet, it is also poorly defined. For example, the term has been applied to the world's large urban areas from the most dense, Dhaka, Bangladesh, (http://www.newgeography.com/content/003004-evolving-urban-form-dhaka) with a population density of 44,000 people per square kilometre (nearly 40 times that of Canadian urbanization and 15 times that of Toronto, Canada's most-dense major urban area) to the least dense, Birmingham, Alabama, at 500 people per square kilometre (see Demographia World Urban Areas, http://demographia.com/db-worldua.pdf). *The Merriam-Webster Dictionary* provides an objective definition of urban sprawl: "the spreading of urban developments (as houses and shopping centers) on undeveloped land near a city" (http://www.merriam-webster.com/dictionary/urban%20sprawl).
15. This trend is well underway in California, due to statewide planning mandates. See Wendell Cox, "California Declares War on Suburbia," *The Wall Street Journal,* April 9, 2012. Retrieved from http://online.wsj.com/article/SB10001424052702303302504577323353434618474.html.
16. This perspective is further described in http://demographia.com/towardmoreprosperous.pdf.
17. An urban area is an area of continuous urbanization that does not include rural land. Statistics Canada uses the term "population centre" to denote urban areas.
18. Sydney, Australia, had such a planning requirement until the New South Wales state government announced its discontinuance in March 2013. See http://www.newgeography.com/content/003574-sydney-abandon-radical-urban-containment-policy.
19. Sub-metropolitan.
20. Measured at the provincial level.
21. Calculated from Statistics Canada data.
22. Calculated from data from Agriculture and Agri-Food Canada. *An Overview of the Canadian Agriculture and Agri-Food System 2011.* Retrieved from http://publications.gc.ca/collections/collection_2011/agr/A38-1-1-2010-eng.pdf.
23. Angel, Shlomo. *Planet of Cities,* Lincoln Institute of Land Policy, September 2012. Available online at http://www.lincolninst.edu/pubs/2094_Planet-of-Cities.
24. A megacity is an urban or metropolitan area with more than 10,000,000 people.
25. The only exceptions are Hong Kong, Tokyo and Osaka-Kobe-Kyoto. Hong Kong has an urban population density double that of any other high-income urban area, which was created by historical accident. Tokyo and Osaka-Kobe-Kyoto reached Canada's 1955 household rate of automobile ownership in 1995. Its rapid spatial growth after World War II permitted expansion of the world's most comprehensive (private) urban rail systems. Tokyo and Hong Kong have the longest one-way work trip travel times in the high-income world, while Osaka-Kobe-Kyoto ranks 104 out of 109 in work trip travel time among metropolitan areas for which data is available (see http://www.fcpp.org/files/1/PS135_Transit_MY15F3.pdf).
26. Cox, Wendell. "Mass Transit's Limited Employment Access in the United States and Europe," National Center for Policy Analysis, September 2, 2012. Retrieved from http://environmentblog.ncpa.org/mass-transits-limited-employment-access-in-the-united-states-and-europe/.
27. Turcotte, Martin. Commuting to Work: Results of the 2010 General Social Survey, Statistics Canada, 2010. Retrieved from http://www.statcan.gc.ca/pub/11-008-x/2011002/article/11531-eng.pdf.
28. Cox, Wendell. "Telecommuting and Working at Home in the Emerging Work Environment," Frontier Centre for Public Policy. Retrieved from http://www.fcpp.org/files/1/PS109_Telecommut_JN23F1r.pdf.

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30. In the United States, for example, two of the three most-dense urban areas, Los Angeles (2,700 per square kilometre) and San Jose (2,300 per square kilometre) have very low mass transit work trip market shares (6 per cent and 3 per cent respectively), while in the less dense New York urban area (2,100 per square kilometre), the mass transit work trip market share is at least five times as high, at 31 per cent.
31. Turcotte, Martin. Life in Metropolitan Areas: Dependence on Cars in Urban Neighbourhoods. Canadian Social Trends, Statistics Canada. Retrieved from http://www.statcan.gc.ca/pub/11-008-x/2008001/article/10503-eng.pdf.
32. Bertaud, Alain. The Spatial Organization of Cities: Deliberate Outcome or Unforeseen Consequence? Institute of Urban and Regional Development, University of California at Berkeley. Retrieved from http://www.escholarship.org/uc/item/5vb4w9wb.
33. Demographia, Southeast England New Towns Commuting Distance and Urban Area Geographical Size. Retrieved from http://www.demographia.com/db-seuknewtowns.htm.
34. Hall, Peter. *Cities in Civilization* (New York, NY: Pantheon Books, 1998), pp. 842-887.
35. Cox, Wendell. "Hong Kong's Decentralizing Commuting Patterns," *New Geography,* December 12, 2012. Retrieved from http://www.newgeography.com/content/003300-hong-kong-s-decentralizing-commuting-patterns.
36. Calculated from 2011 Hong Kong census.
37. Calculated from 2006 census.
38. This calculation excludes people who work at home. The five-kilometre radius used in Canada often includes water areas, especially in Vancouver, Toronto and Montréal, which would narrow the gap between the 79 square kilometre Canadian measure and the 61 square kilometre Hong Kong measure. These two distance measures, the Hong Kong district and the five-kilometre radius, are used because they are the closest census approximations available.
39. The research specifically denies any finding of a relationship to density (see http://www.newgeography.com/content/002987-density-not-issue-the-urban-scaling-research). Indeed, the recent Brookings Institution *Global Metro Monitor* cited Hartford, Connecticut, as the most affluent metropolitan area in the world (per capita gross domestic product, purchasing power parity adjusted). Hartford ranks 865th in the world in urban population density out of the 875 urban areas with a 500,000 or more population and is 60 per cent less dense than the average of Canadian urban areas with a 500,000 or more population (see http://demographia.com/db-worldua.pdf and http://www.newgeography.com/content/003420-worlds-most-affluent-metropolitan-areas-2012).
40. Canada Post. Moving Trends: 1 in 5 Canadians Move Because of Work. May 29, 2012. Retrieved from http://www.canadapost.ca/cpo/mc/aboutus/news/pr/2012/2012_moving_trends.jsf.
41. Some have claimed that municipal bankruptcies in California have been partially caused by the cost of servicing lower density suburban development (see http://articles.latimes.com/2012/oct/01/opinion/la-oe-fulton-california-bankruptcies-sprawl-20121001 and http://www.calgaryherald.com/news/calgary/Tales+City+City+says+sprawl+doesn+work/8077037/story.html). These claims are refuted in http://www.calgaryherald.com/opinion/columnists/City+bankruptcy+troubles+weren+caused+sprawl/8140135/story.html, which documents the fact that the California municipal bankruptcies were caused by fiscal mismanagement, which was admitted by one of the cities (Stockton), and declining property tax and development fees due to the housing bust. The majority of U.S. urban areas were found to be less dense and have continued to provide sufficient infrastructure.
42. While GHG emissions per passenger kilometre are less on transit than in automobiles, the comparison is generally theoretical rather than practical. Most personal trips simply cannot be conveniently replicated by transit, principally because of transit's slower travel times or its unavailability for the particular trip. Further, as indicated below, automobile fuel efficiency is improving markedly, and transit's theoretical advantage is likely to be substantially lessened in the future. New cars in 2025, for example, will be less GHG intensive than all but two mass transit systems today in the United States under adopted regulations (see http://www.newgeography.com/content/003061-obama-fuel-economy-rules-trump-smart-growth).
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44. Cox, Wendell. "Durban, Reducing Emissions and the Dimensions of Sustainability," New Geography, December 12, 2011. Retrieved from http://www.newgeography.com/content/002565-durban-reducing-emissions-and-dimensions-sustainability.
45. Metropolitan Transit Commission. New Bay Area Plan Puts Change in Motion, April 22, 2009. Retrieved from http://www.mtc.ca.gov/planning/2035_plan/.
46. Transportation is a large contributor to GHG emissions, estimated at 23 per cent of the world GHG emissions, 75 per cent of which is from road vehicles (IPCC 2007b, 325). IPCC further estimated the potential for GHG reductions from transportation at between 8 per cent and 10 per cent, assuming a cost of less than $100 per ton (IPCC 2007a, 11) and based upon a total CO2 equivalent GHG emission of from 16.1 gigatons to 31.1 gigatons in 2050 (IPCC 2007c, 632).
47. Cox, Wendell. California Declares War on Suburbia II: The Cost of Radical Densification, March 18, 2012. Retrieved from http://www.newgeography.com/content/002781-california-declares-war-suburbia-ii-the-cost-radical-densification.
48. Transport Canada, *The Cost of Urban Congestion in Canada,* 2007. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=9CD2D9FA6D7AE54580D380138C052FED?doi=10.1.1.134.6880&rep=rep1&type=pdf.
49. 2005 was the base year for congressional proposals to mandate U.S. GHG emission reductions to 2050 (the legislation was not enacted).
50. Glon, Ronan. "Volkswagen to Launch XL1 Diesel-powered Plug-in Hybrid in 2013," Left Lane. February 2, 2012. Retrieved from http://www.leftlanenews.com/volkswagen-xl1-2013.html and Antony Ingram, "Audi Plans 200 MPG-plus High-tech Small Car," Green Car Reports, November 26, 2012. Retrieved from http://www.greencarreports.com/news/1080653_audi-plans-200-mpg-plus-high-tech-small-car.
51. Cox, Wendell. "Greenhouse Gas Emissions and Reality: Residential Emissions," *New Geography,* April 8, 2009. Retrieved from http://www.newgeography.com/content/00728-greenhouse-gas-emissions-and-reality-residential-emissions.
52. The two sectors at which urban containment policy is principally directed, personal transportation and housing, have (or will have, based upon projections) performed better than the economy has in lower GHG emissions.
53. See Canadian Homebuilders Association, "Recognizing Success: Energy Efficiency, Energy Use and Greenhouse Gas Emission Performance in Canadian Homes: 1990-2010," January 2013. Retrieved from http://www.chba.ca/uploads/policy%20archive/2013/Recognizing%20Success%20-%202012.pdf.

54. The 25 per cent densification scenario would double the density of 25 per cent of new development, while the 75 per cent densification scenario would double the density of 75 per cent of new development.
55. GHG reductions at the midpoint of cases within the two scenarios.
56. Cox, Wendell. "Questioning the Messianic Concept of Smart Growth," *New Geography,* June 28, 2012. Retrieved from http://www.newgeography.com/content/002934-questioning-messianic-conception-smart-growth.
57. Bryce, Robert. "When 600 Million People Lost Power," *Wall Street Journal.* Available online at http://online.wsj.com/article/SB10000872396390443687504577565041028069420.html.
58. Shown in 20 percent income bands (quintiles), from the lowest 20 percent of housedholds (lowest quintile) to the highest (highest quintile).
59. An urban growth boundary can be given varying names, such as urban limit or urban service boundary. The euphemism "growth areas" is also used.
60. Green, R. K. and S. Malpezzi, *A Primer on U.S. Housing Markets and Housing Policy,* Urban Institute Press, 2003, p. 146.
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67. Fischel, William A. *Regulatory Takings.* Retrieved from http://www.amazon.com/gp/product/0674753887?ie=UTF8&tag=newgeogrcom-20&linkCode=as2&camp=1789&creative=390957&creativeASIN=0674753887.
68. Glaeser, E. L. and Joseph Gyourko. *Rethinking Federal Housing Policy: How to Make Housing Plentiful and Affordable,* American Enterprise Institute, 2008, p.78.
69. Transit-oriented development can appeal to some households; however, it seems likely that the eventual share of this new housing chosen by consumers will be limited.
70. Cox, Wendell. "A Housing Preference Sea Change? Not in California," New Geography, November 13, 2012. Retrieved from http://www.newgeography.com/content/003224-a-housing-preference-sea-change-not-california.
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72. Downs, Anthony. *New Visions for Metropolitan America,* Brookings Institution Press and Lincoln Institute of Land Policy, 1994, p. 38.
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Further Reading

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Toward More Prosperous Cities

By Wendell Cox

http://www.fcpp.org/publication.php/4559

Improving the Competitiveness of Metropolitan Areas

By Wendell Cox

http://www.fcpp.org/files/1/PS135_Transit_MY15F3.pdf